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The Resources Agency
Department of Water Resources

BULLETIN No. 178-74

WATERMASTER SERVICE
IN THE
RAYMOND BASIN
LOS ANGELES COUNTY

FOR PERIOD
JULY 1, 1973 THROUGH JUNE 30, 1974

AUGUST 1974

NORMAN B. LIVERMORE, JR.
Secretary for Resources
The Resources Agency

RONALD REAGAN
Governor
State of California

JOHN R. TEERINK
Director
Department of Water Resources

ABSTRACT

Precipitation and runoff were slightly below normal in the Raymond Basin during fiscal year 1973-74. Despite this, water levels in the vicinity of Arroyo Seco spreading grounds and in the Eastern Unit increased slightly as a result of spreading. No water rights were permanently transferred during the year; however, 45 acre-feet were temporarily transferred in the Exchange Pool and 1,169 acre-feet were leased. Two Modifications of the Judgment were approved and a program of water quality monitoring was formulated.

Item	1972-73 Fiscal Year	1973-74 Fiscal Year	Percent of change from previous fiscal year
Perties, number of	21	21	0
Active pumpers, number of	21	21	0
Active nonperties, number of	2	2	0
Watermaster expenses	\$ 34,642.72	\$ 35,671.48	+ 3
Watermaster expenses, per acre-foot pumped	1.07	1.12	+ 5
Valley rainfall, in inches	28.08	19.66	- 30
Runoff, in acre-feet			
Inflow	16,211	12,071	- 26
Outflow	23,909	14,253	- 40
Spreading operation, in acre-feet	7,072	8,947	+ 27
"Decreed Right 1955", in acre-feet	30,622	30,622	0
Extractions inside basin, in acre-feet	32,434	31,817	- 2
Diversions, in acre-feet	4,697	4,341	- 8
Imports, in acre-feet	23,027	22,801	- 1
Exports, in acre-feet	- 10,504	- 7,337	- 30
Net Water Use, in acre-feet	49,655	51,622	+ 4

State of California The Resources Agency DEPARTMENT OF WATER RESOURCES

Ronald Reagan, Governor
Norman B. Livermore, Jr., Secretary for Resources
John R. Teerink, Director, Department of Water Resources
Robert G. Eiland, Deputy Director

SOUTHERN DISTRICT

Jack J. Coe District Engineer and Watermaster
Mitchell L. Gould Chief, Operations Branch and Deputy Watermaster

Watermaster service in this area was conducted
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FOREWORD

The Watermaster presents this annual report as a comprehensive review of water conditions in the Raymond Basin during the past fiscal year. It is prepared for the Superior Court, County of Los Angeles, and for the parties to that certain Judgment made and entered December 23, 1944, in the Superior Court of the State of California in and for the County of Los Angeles. The action is identified as Case No. Pasadena C-1323, entitled "City of Pasadena, a municipal corporation, Plaintiff, vs. City of Alhambra, a municipal corporation et al, Defendants".

The Raymond Basin, established as a Watermaster service area under Part 4, Division 2, of the California Water Code, is monitored by the State Department of Water Resources. The Basin has been operated for several years under a well-defined management plan, one phase of which limits ground water extractions.

This report covers the scope of the Watermaster's work, conditions of ground water supply, water use, ground water replenishment, variations from guidelines in the Judgment, and a complete financial report for the past fiscal year.



Jack J. Cole
District Engineer
Southern District
and Watermaster
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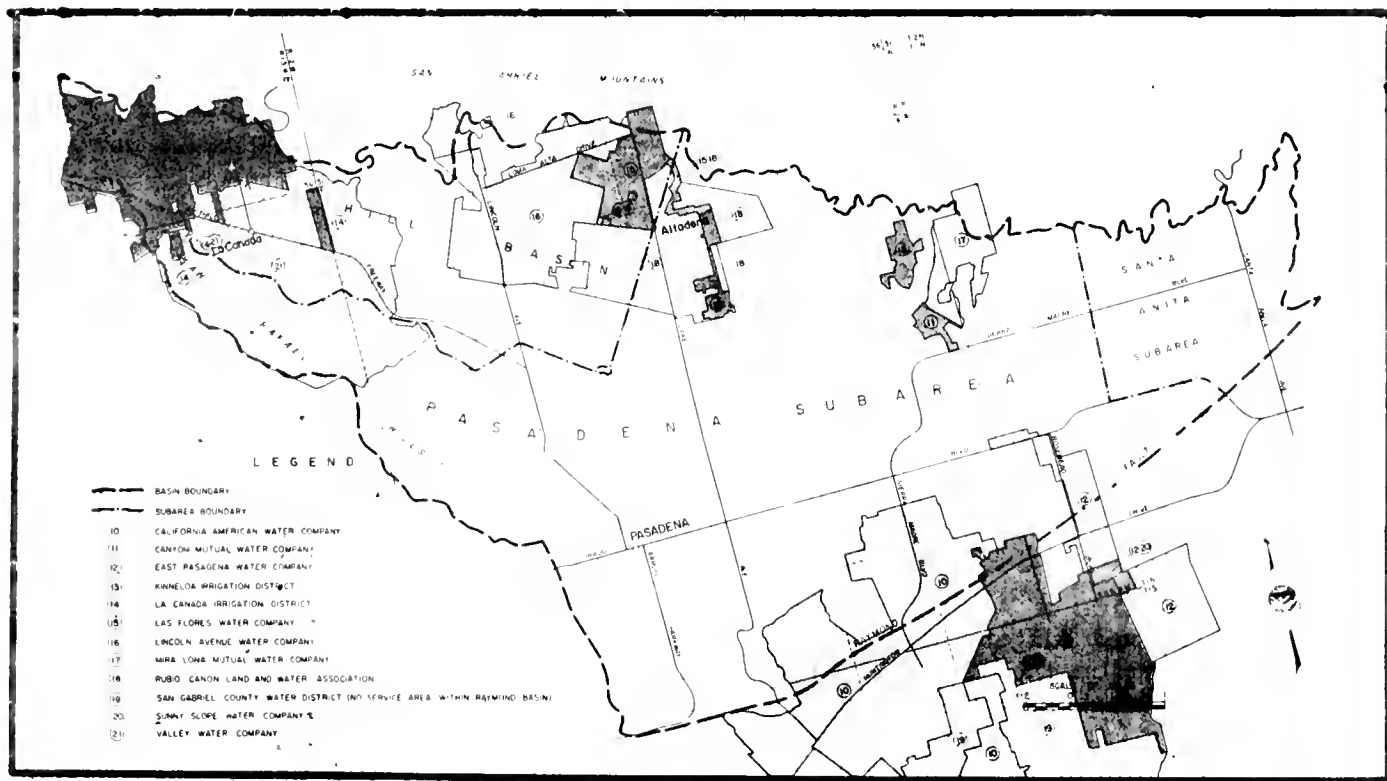
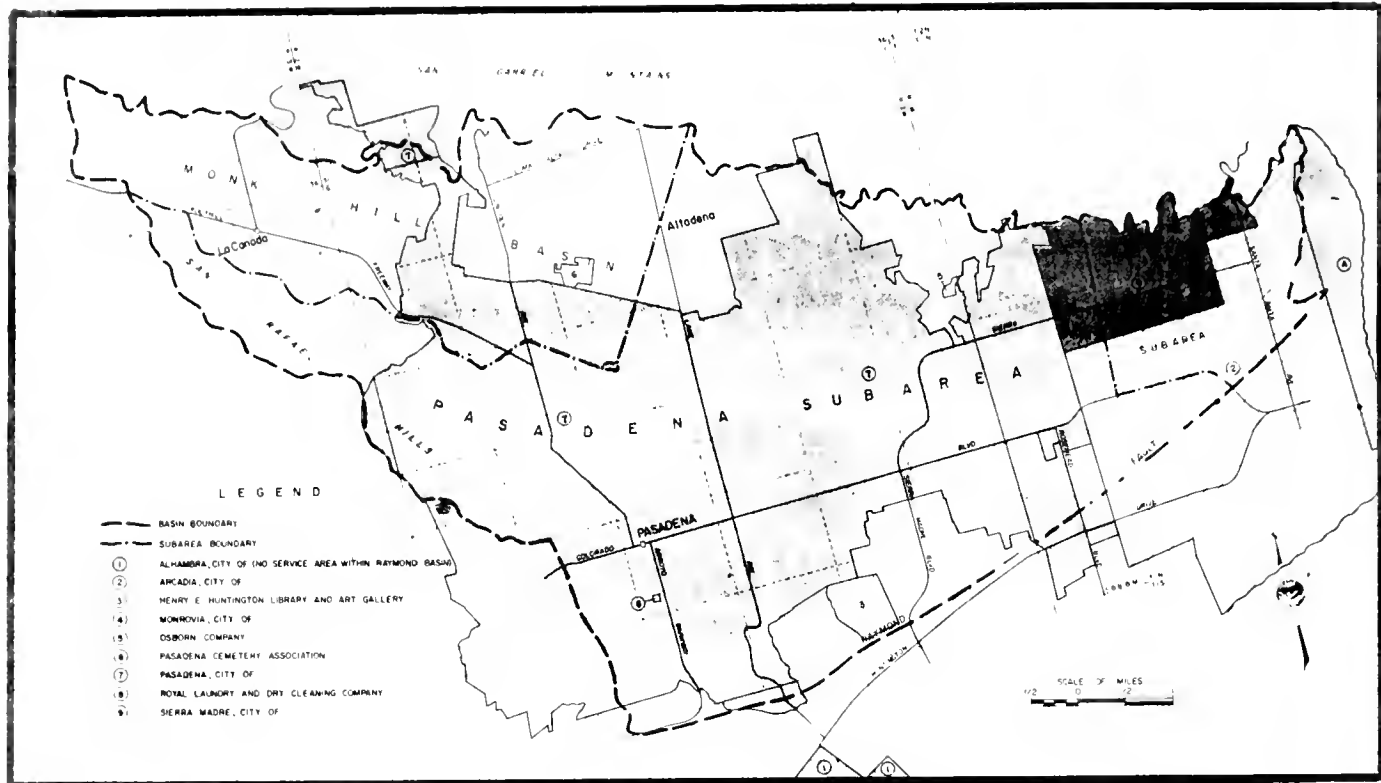


Figure 1. WATER SERVICE AREAS OF PARTIES TO WATERMASTER SERVICE, JUNE 1974

I. THE RAYMOND BASIN

A reliable source of potable ground water is a valuable asset to any community. The Raymond Basin, in the northwest corner of the San Gabriel Valley, is such a source for the cities of Alhambra, Arcadia, Monrovia, Pasadena, San Marino, Sierra Madre, and the communities of Altadena and La Canada. Watermaster Service provided by the State Department of Water Resources helps to protect the rich supply of ground water for residents and industries. Figure 1 depicts water service areas of the parties.

The Raymond Basin is a small triangular ground water reservoir flanked by mountains on the north and west. The southern side is bounded by a seven-mile-long impervious dike formed by the Raymond Fault, which effectively separates the Raymond Basin from the San Gabriel Valley Basin.

Ground water has always had an impact on the people who live and work in the Raymond Basin. Most of the Basin's 40-square-mile area is urban-suburban and its cities use large amounts of fresh water daily, a substantial portion of which is pumped directly from the Basin.

Some years ago, when the ground water supply was endangered by rapidly falling water levels, timely legal action by water users halted the overdraft and prevented serious damage to the Basin. To prevent eventual depletion of ground water, the Judgment limited each party to a specific annual extraction. Certain variances were permitted, but no variance could prevail beyond a five-year period. In 1955, provisions in the original Judgment were modified, increasing water rights to 30,622 acre-feet and are now referred to as "Decreed Right, 1955". The variances in use of water

rights had not been changed until June 24, 1974, when the five-year variance was changed to 10 percent per year.

All water used in the Basin, particularly ground water, is monitored by a court-appointed Watermaster who reports all significant water-related events occurring in the Basin to the Superior Court and parties to the Judgment.

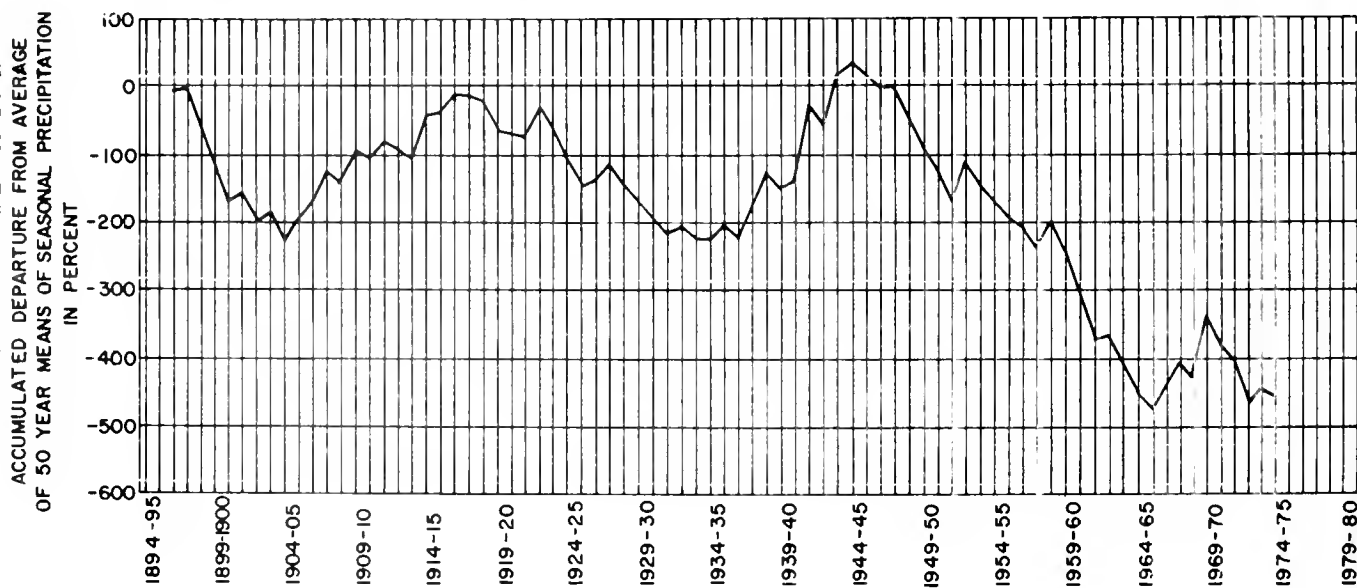
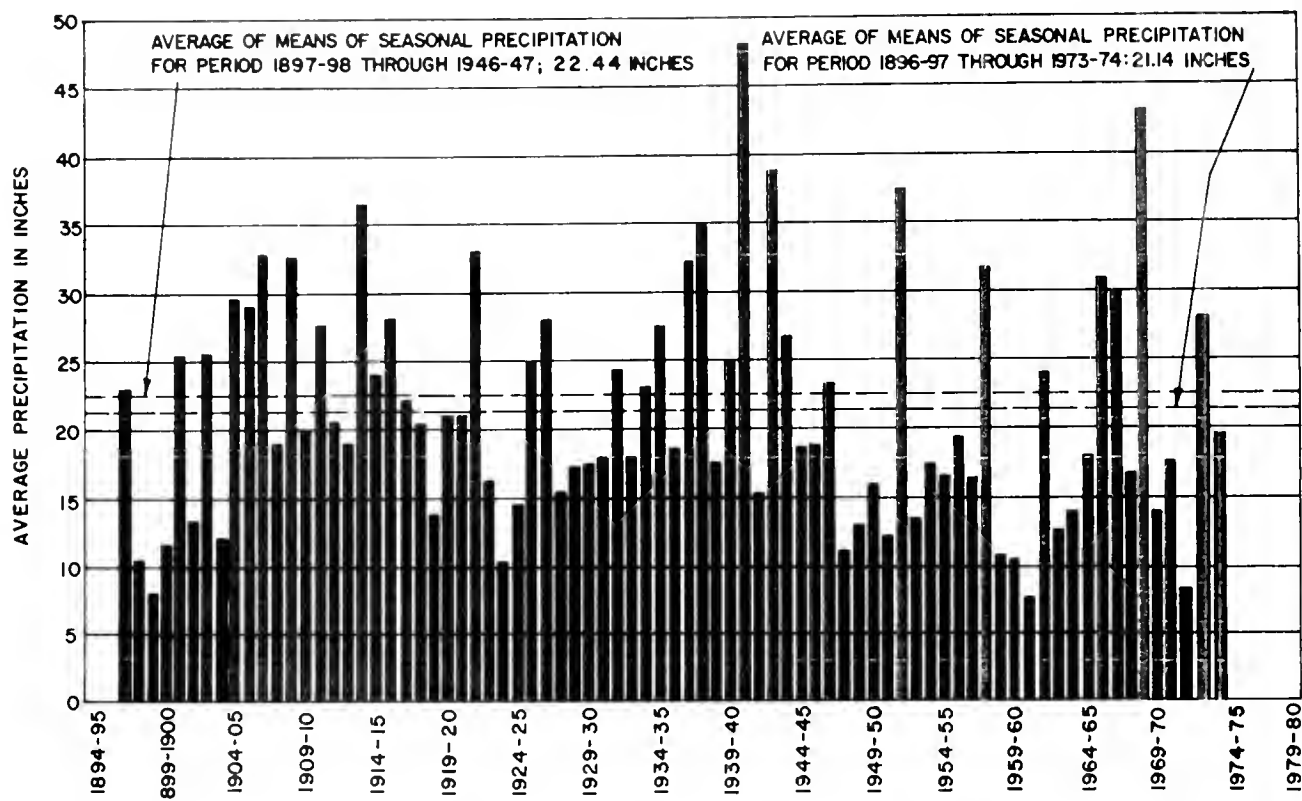
Functions of the Watermaster

Accurate measurement of ground water extractions is essential to the success of the Basin's management plan. The Watermaster calibrates the water meter on every active water well at least once every two years and uses every available means, including system efficiency tests, to confirm water meter tests. Inaccurate meters must be repaired within 30 days. Follow-up tests on repaired meters and initial tests on new wells are scheduled whenever necessary.

Once a month, the Watermaster receives ground water extraction reports from pumpers and updates each water right account by computing the amounts pumped during the previous month and current fiscal year. These data establish the amount that may legally be extracted by each pumper during the rest of the year.

The Watermaster measures depth to static ground water level in about 115 wells throughout the Basin in the spring and fall and prepares fall and spring contour maps of the ground water surface and a "fall-to-fall" map showing lines of equal elevation change in a one-year period. He also operates nine stream gaging stations to measure surface flow.

The Watermaster began a sewage outflow measurement program during the 1968-69 season, using F-type water stage recorders on 12 major sewage trunk lines. The program was not implemented during the 1973-74 season.



RAINFALL SEASON JULY 1 - JUNE 30

Figure 2. RAINFALL CHARACTERISTICS OF VALLEY STATIONS, 1896 - 1974

II. WATER SUPPLY

Southern California's urban economy depends on Colorado and Owens Rivers water, Northern California water, mountain runoff, ground water, reclaimed wastewater, and desalinated water. These sources contribute to one of the world's largest water supply systems.

Precipitation

The ground water supply of the highly permeable Raymond Basin could be considerably influenced by local precipitation. Natural replenishment occurs readily when water has time to percolate into a storage zone. Unfortunately, most of the Basin is urban and much of its surface is paved with asphalt and concrete that

channels the runoff before it can replenish the ground water.

Long-term precipitation trends are shown in Figure 2, in which a downward slope indicates a continued dry period and an upward slope an above normal increase in precipitation. The curve of cumulative departures from the mean shows the relative magnitude of the drought that began in 1944.

During the 1973-74 season, precipitation was about 88 percent of the long-time mean at valley stations and about 85 percent of the mean at mountain stations (Table 1). The below normal precipitation during the past season reversed the upward slope of the previous year.

Table 1. PRECIPITATION

Station		Period of record in years ^{a/}	July through June, in inches			
Name	Type		1972-73	1973-74	50-year mean	
	Valley	Moun- tain				
Altadena Golf Course	X		77	27.79	20.40	23.11
Highland Park	X		79	23.34	17.10	18.52
La Canada	X		62	30.18	18.56	23.20 ^{c/}
Mt. Wilson Observatory ^{b/}		X	40	49.01	37.03	36.40 ^{c/}
Oakwilde		X	47	24.59	17.50	28.19 ^{c/}
Opid's Camp		X	57	50.52	35.81	41.19 ^{c/}
Pasadena Chlorine Plant		X	58	29.13	21.60	23.40 ^{c/}
Sierra Madre	X	X	79	31.01	22.58	25.00
Upper Haine's Canyon		X	56	32.51	23.50	30.06 ^{c/}
Waterman Guard Station ^{d/}		X	47	33.18	23.54	27.72 ^{c/}
Seasonal Average						
	X			28.08	19.66	22.44
		X		35.71	25.94	30.63

^{a/} Includes replaced station.

^{b/} Substituted for Mt. Wilson Airways.

^{c/} Estimated.

^{d/} Substituted for Switzer's Camp

a/ Includes replaced station.

b/ Substituted for Mt. Wilson Airways.

c/ Estimated.

d/ Substituted for Switzer's Camp

Table 2. CREDIT FOR WATER SPREAD BY CITY OF SIERRA MADRE

Season	Water spread for salvage				(5) Salvage water lost to subsurface outflow	(6) Salvage water extracted	(7) Salvage water at end of year (1)+(4)-(5)-(6)=(7)
	(1) Salvage water at beginning of year	(2) Amount	(3) Lost through natural percolation	(4) Water Stored (2)-(3)=(4)			
1951-52	0	1,937.0	526.9	1,410.1	124.4	449.4	836.3
52-53	836.3	258.0	94.6	163.4	243.1	334.9	421.7
53-54	421.7	580.0	4.6	575.4	115.4	596.1	285.6
54-55	285.6	341.0	21.5	319.5	15.1	559.1	30.9
55-56	30.9	429.0	90.9	338.1	9.6	128.0	231.4
56-57	231.4	331.0	167.1	163.9	42.1	62.0	291.2
57-58	291.2	3,409.0	811.9	2,597.1	278.8	0.0	2,609.5
58-59	2,609.5	1,308.0	521.0	787.0	945.1	37.5	2,413.9
59-60	2,413.9	45.0	10.4	34.6	705.6	208.2	1,534.7
1960-61	1,534.7	51.0	16.0	35.0	214.1	1,116.3	239.3
61-62	239.3	1,283.0	445.6	837.4	43.1	292.9	740.8
62-63	740.8	1,121.0	554.4	576.6	241.7	253.9	821.8
63-64	821.8	699.0	164.4	534.6	180.2	451.3	724.9
64-65	724.9	904.0	208.0	695.4	142.8	837.3	440.2
65-66	440.2	4,233.0	979.0	3,254.0	533.5	433.1	2,727.6
66-67	2,727.6	4,537.0	945.1	3,591.9	1,110.9	0.0	5,208.6
67-68	5,208.6	2,625.0	1,069.2	1,555.8	1,663.1	0.0	5,101.3
68-69	5,101.3	2,984.0	371.9	2,612.1	1,532.3	0.0	6,181.1
69-70	6,181.1	1,529.3	932.2	597.1	1,495.5	0.0	5,282.7
1970-71	5,282.7	1,145.3	369.7	775.6	1,285.7	0.0	4,772.6
71-72	4,772.6	1,014.4	311.5	702.9	1,518.3	0.0	3,957.2
72-73	3,957.2	3,204.0	824.5	2,379.5	815.1	84.7	5,436.9
73-74	5,436.9	3,029.1	891.9	2,137.2	1,603.7	64.7	5,905.7
TOTALS		36,997.1	10,332.3	26,674.2	14,859.2	5,909.4	

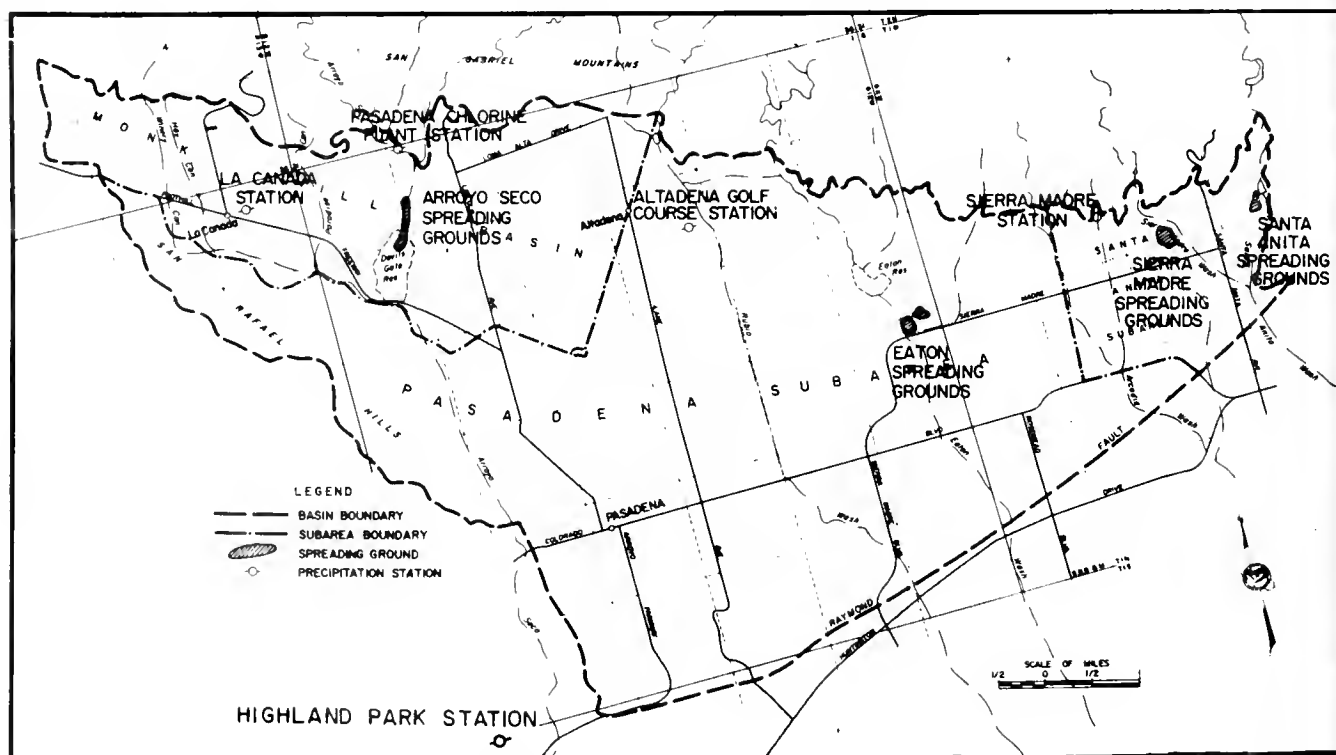


Figure 3 PRECIPITATION STATIONS AND SPREADING GROUNDS

Ground Water Recharge

Overdraft occurs when ground water is extracted more rapidly than it is replaced naturally. Ground water aquifers recharge themselves so slowly that a few years of concentrated pumping can upset a balance that took centuries to establish. This was the situation in the Raymond Basin several years ago.

Today, several methods of artificial recharge are being used to reestablish and maintain nature's balance. One of these is spreading. Areas are flooded with water that percolates into aquifers and supplement the natural supply. Large quantities can be returned to the ground by spreading, but the process is limited by the space available and the capacity of the basin to accept the water.

The Los Angeles County Flood Control District (LACFCD) operates three spreading grounds in the Raymond Basin--Arroyo Seco, Eaton Wash, and Santa Anita Grounds (Figure 3). Another project, Sierra Madre Grounds, is operated by the City of Sierra Madre. Since the spread water is added directly to the Raymond Basin, water levels near the spreading grounds, especially the Eastern Unit and Monk Hill Basin, reflect the

additions quickly. Spreading thus benefits all parties in the Basin greatly (Table 3).

Salvage Credit for City of Sierra Madre

The City of Sierra Madre spreads local street runoff and water diverted from Santa Anita Creek and Sierra Madre Wash. Essentially, the City uses the Eastern Unit as a storage facility, a privilege obtained several years ago by agreement with Arcadia. The Watermaster determines the total quantity spread in the Sierra Madre Grounds and credits the City with the portion that is not part of the natural replenishment of the Eastern Unit. This is called "salvage credit" water. It may not be pumped by the City until both its exchange water purchase, if any, and decreed right are fully used. Salvage credit remaining at the end of each season since 1951 is summarized in Table 2. The City pumped 64.71 acre-feet of its salvage credit water during the past season and lost 1603.79 acre-feet of the stored water through subsurface outflow.

Table 3. WATER SPREAD FOR GROUND WATER RECHARGE

Participant	Spreading Ground	Source	Acre-feet
LACFCD	Arroyo Seco	Arroyo Seco	1,469.96 ^{a/}
	Eaton Wash	Eaton Canyon	1,574.10 ^{b/}
	Santa Anita	Santa Anita Canyon	429.40
Kinneloa Irrigation District ^{c/}	Eaton Wash ^{d/}	Kinneloa Canyon	8.27
Las Flores Water Company ^{c/}	Rubio Canyon Debris Basin ^{d/}	Las Flores Canyon	41.38
Lincoln Avenue Water Company ^{c/}	Arroyo Seco ^{d/}	Millard & El Prieto Canyons	641.71
Pasadena, City of ^{c/}	Arroyo Seco ^{d/}	Arroyo Seco	525.28
	Eaton Wash ^{d/}	Eaton Canyon	1,026.58
Rubio Canon Land & Water Assoc. ^{c/}	Rubio Canyon Debris Basin ^{d/}	Rubio Canyon	201.04
Sierra Madre, City of	Sierra Madre	Santa Anita Canyon, Little Santa Anita Canyon, and Street Runoff	3,029.10
TOTAL			8,946.76

^{a/} Does not include 1,354 acre-feet percolation at Devil's Gate Dam.

^{b/} Does not include 1,430 acre-feet estimated percolation at Eaton Wash Reservoir.

^{c/} Pursuant to program for spreading credit.

^{d/} Major part of percolation occurs in the streambed.

Program for Spreading Credit

On January 17, 1974, the Court approved a Modification of the Judgment allowing parties having surface diversion rights to spread their diversions for future recapture by pumping from their wells. The program had begun on May 1, 1973. The parties electing to participate in this program are:

Kinneloa Irrigation District
Las Flores Water Company
Lincoln Avenue Water Company
City of Pasadena
Rubio Canon Land and Water Assoc.

The inception of the program and its implementation are discussed in Chapter IV.

Runoff

Thirteen stream gaging stations are used to determine the volume of surface water moving through the Raymond Basin. The Watermaster operates nine and the Los Angeles County Flood Control District operates four (Figure 4). Appendix A summarizes information collected at stations operated by the Watermaster. The seasonal summary of "measured" flow at each gaging station appears in Table 4.

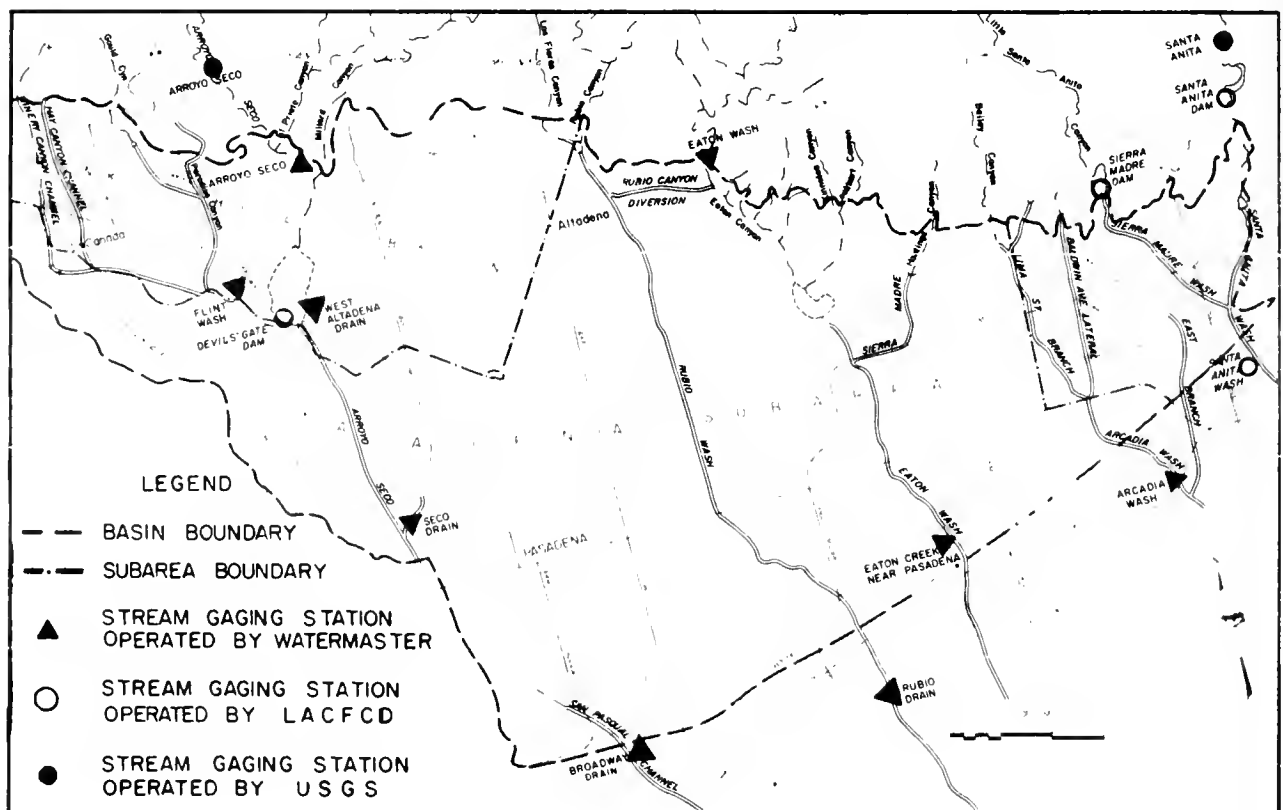


Figure 4. STREAM GAGING STATIONS

Table 4. RAYMOND BASIN RUNOFF

Watermaster Stream Gaging Stations		:	Flow in acre-feet
No. :	Name	:	
<u>Monk Hill Basin Flow into Devil's Gate Reservoir</u>			
62190	Flint Wash		2,444
62985	West Altadena Drain		<u>590</u>
TOTAL INTERNAL FLOW			3,034
<u>Inflow to Raymond Basin</u>			
62250	Arroyo Seco ^{a/}		1,315
	City of Pasadena diversions		<u>2,879</u>
Subtotal			4,194
75360	Eaton Creek near Pasadena ^{a/}		2,949 ^{b/}
<u>c/</u>	Sierra Madre Dam ^{a/}		169
<u>c/</u>	Santa Anita Dam ^{a/}		<u>4,759</u>
TOTAL INFLOW			12,071
<u>Outflow from Raymond Basin</u>			
<u>c/</u>	Devil's Gate Dam		3,488
62150	Seco Drain		830
75135	Broadway Drain		2,041
75220	Rubio Drain		3,531
75300	Eaton Wash		1,429
75450	Arcadia Wash		1,195
<u>c/</u>	Santa Anita Wash		<u>1,739</u>
TOTAL OUTFLOW			14,253
<u>a/</u> Includes water diverted to spreading ground within the basin. <u>b/</u> City of Pasadena claimed 1,026.58 acre-feet for spreading credit. <u>c/</u> Operated by Los Angeles County Flood Control District.			

Ground Water Elevations

During the past season, the Watermaster collected and processed data to determine prevailing ground water conditions in the Raymond Basin (Figures 5, 6, and 7).

Figure 5 shows the elevations of the ground water table during the fall of 1973. Figure 6 represents the table in the spring of 1974 at the end of the rainy season and shows the conditions resulting from the wet winter. Figure 7 shows the changes in elevation in the water table between the 1972 and 1973 fall seasons.

Hydrographs depicting historic ground water table fluctuations in selected wells in the Raymond Basin are shown in Figures 8, 9, and 10. The sites of these wells appear in Figure 12. Many more hydrographs are available for inspection at the Watermaster's Office.

The hydrograph of the City of Arcadia's Orange Grove No. 4 well (Figure 10) is one of the Arcadia group of wells whose performance governs the limitation of pumping in the Eastern Unit of the Raymond Basin. The limitation is imposed if the water surface at the Arcadia group of wells drops below an elevation of 500 feet above sea level. The limitation reduces the annual extraction from the Eastern Unit during the following season from 5,290 acre-feet to 3,261 acre-feet. Because the water surface was above the 500-foot limit during spring 1974, the limitation of pumping will not be in effect during the 1974-75 season.

Although the 1973-74 rainfall was below seasonal average, the hydrographs show a slight increase in water levels throughout the Eastern Unit and partly in the Monk Hill Basin and Pasadena Subarea as a result of the spreading program by certain parties.

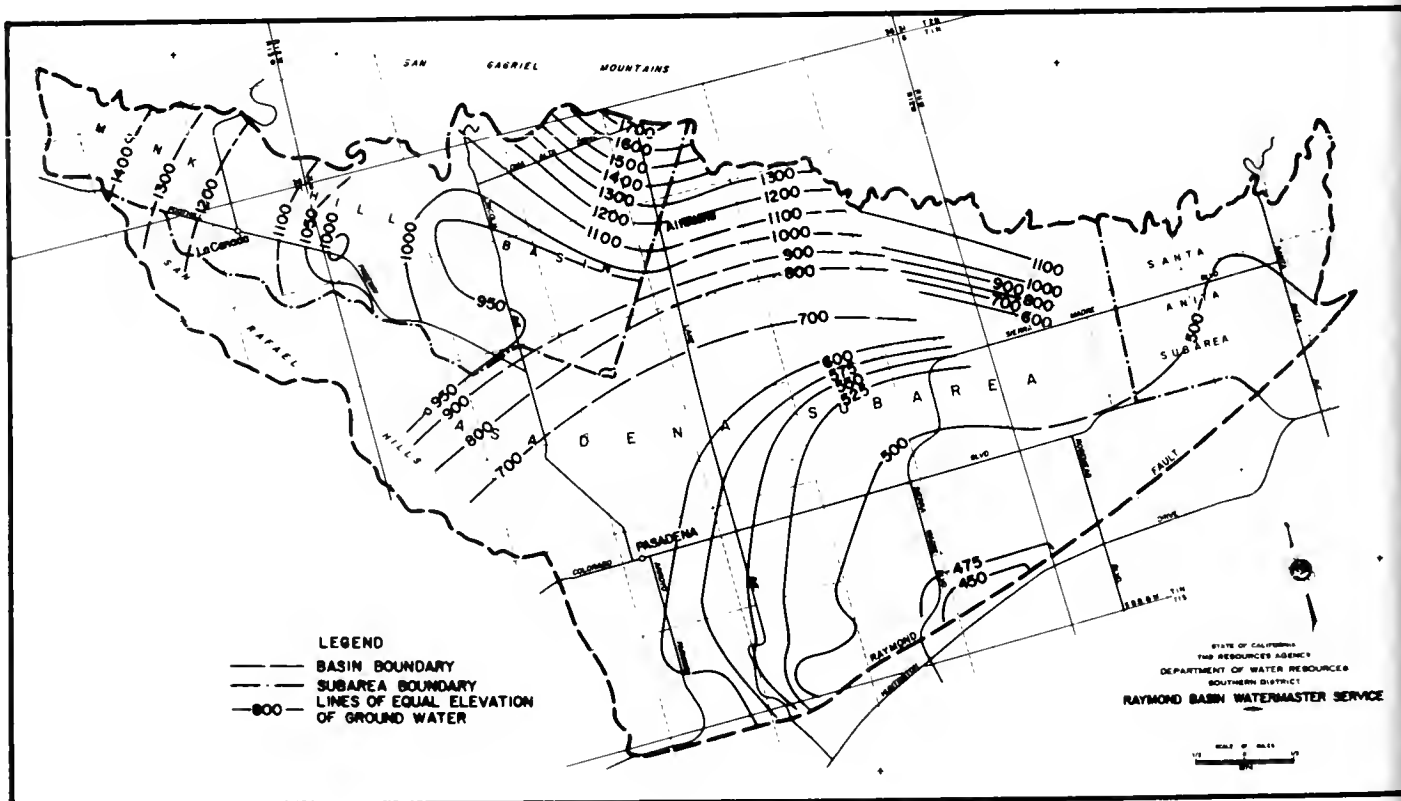


Figure 5. LINES OF EQUAL ELEVATION OF GROUND WATER, FALL 1973

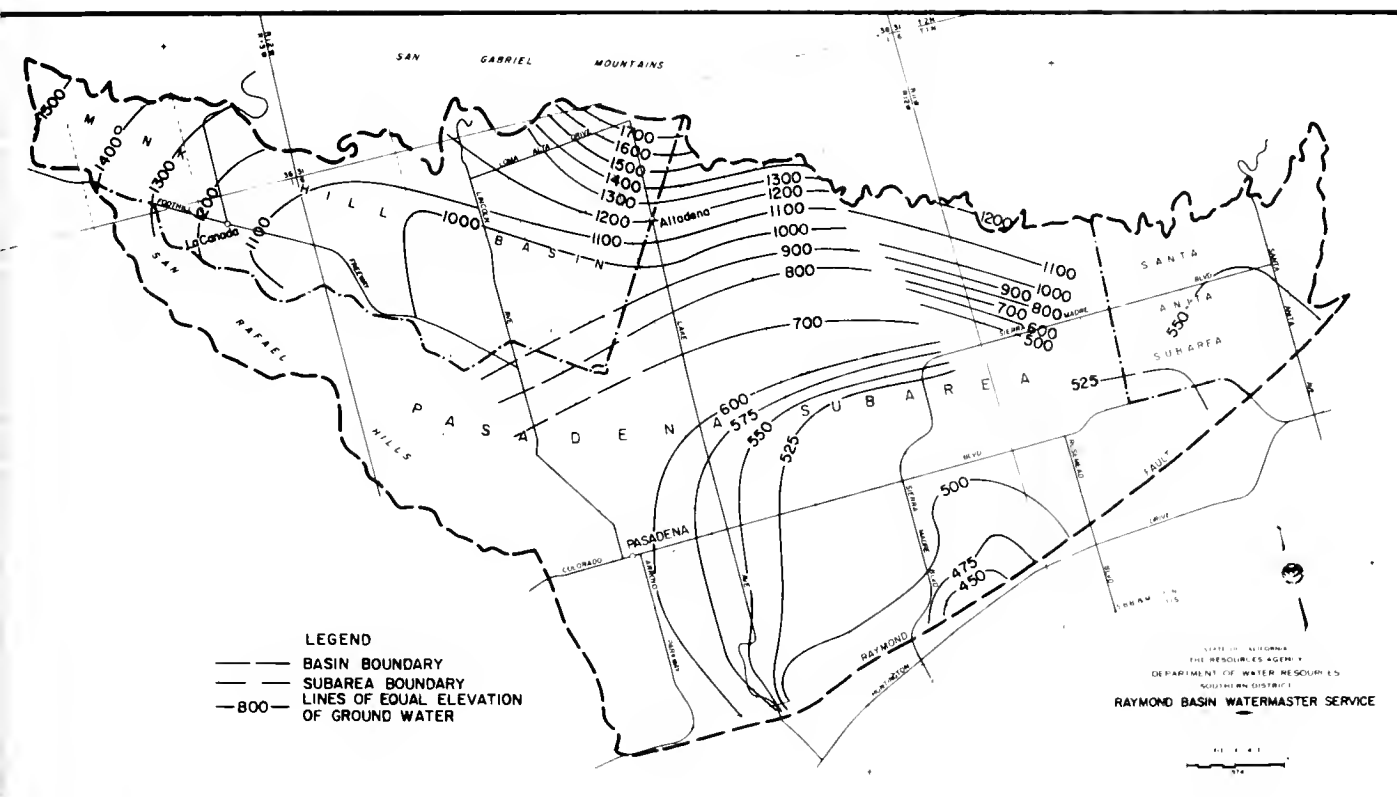


Figure 6. LINES OF EQUAL ELEVATION OF GROUND WATER, SPRING 1974

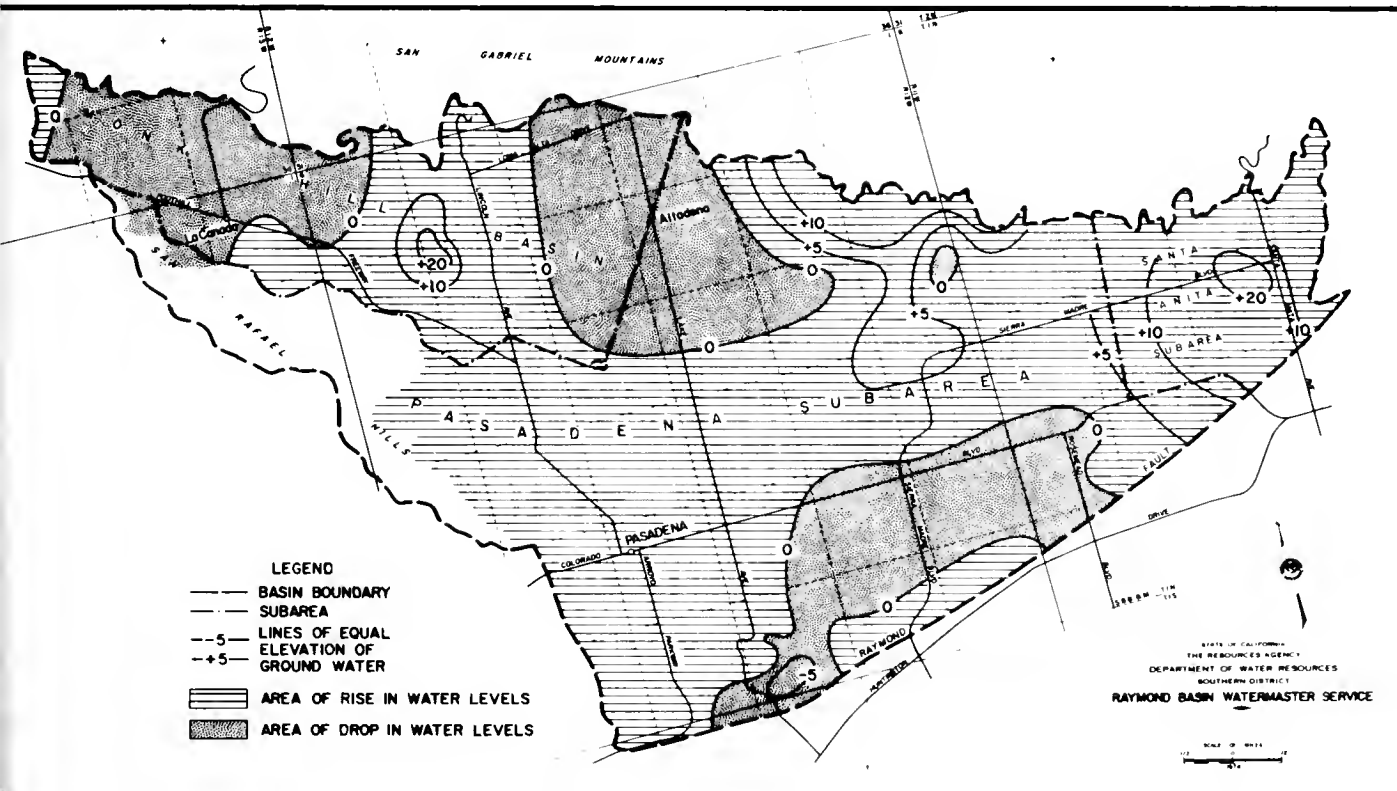


Figure 7. LINES OF EQUAL CHANGE OF GROUND WATER ELEVATION, FALL 1972 TO FALL 1973

ELEVATION OF WATER LEVELS AT WELLS IN FEET - U.S.G.S. DATUM

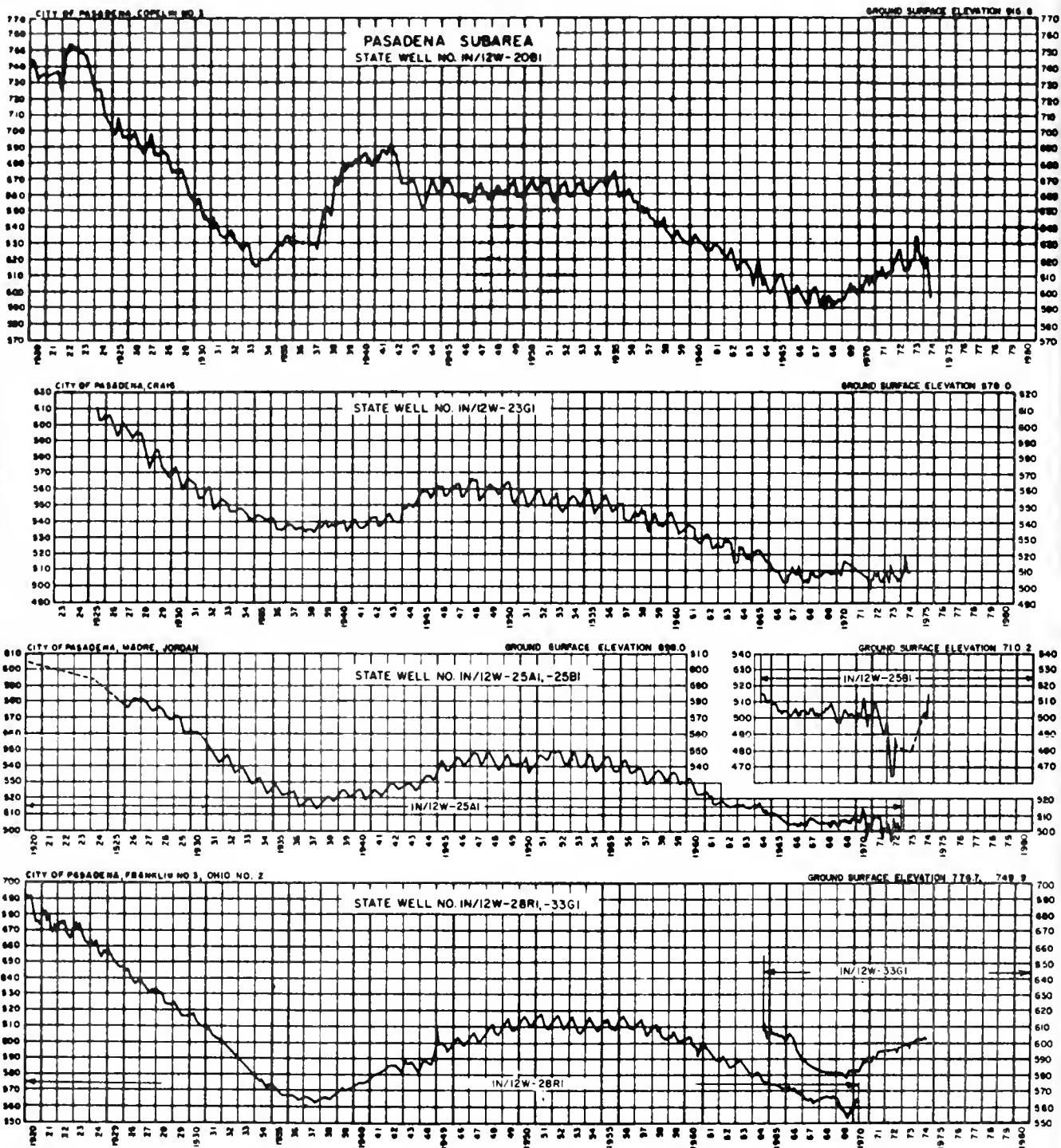


Figure 8 - FLUCTUATION OF WATER LEVELS AT WELLS IN THE PASADENA SUBAREA

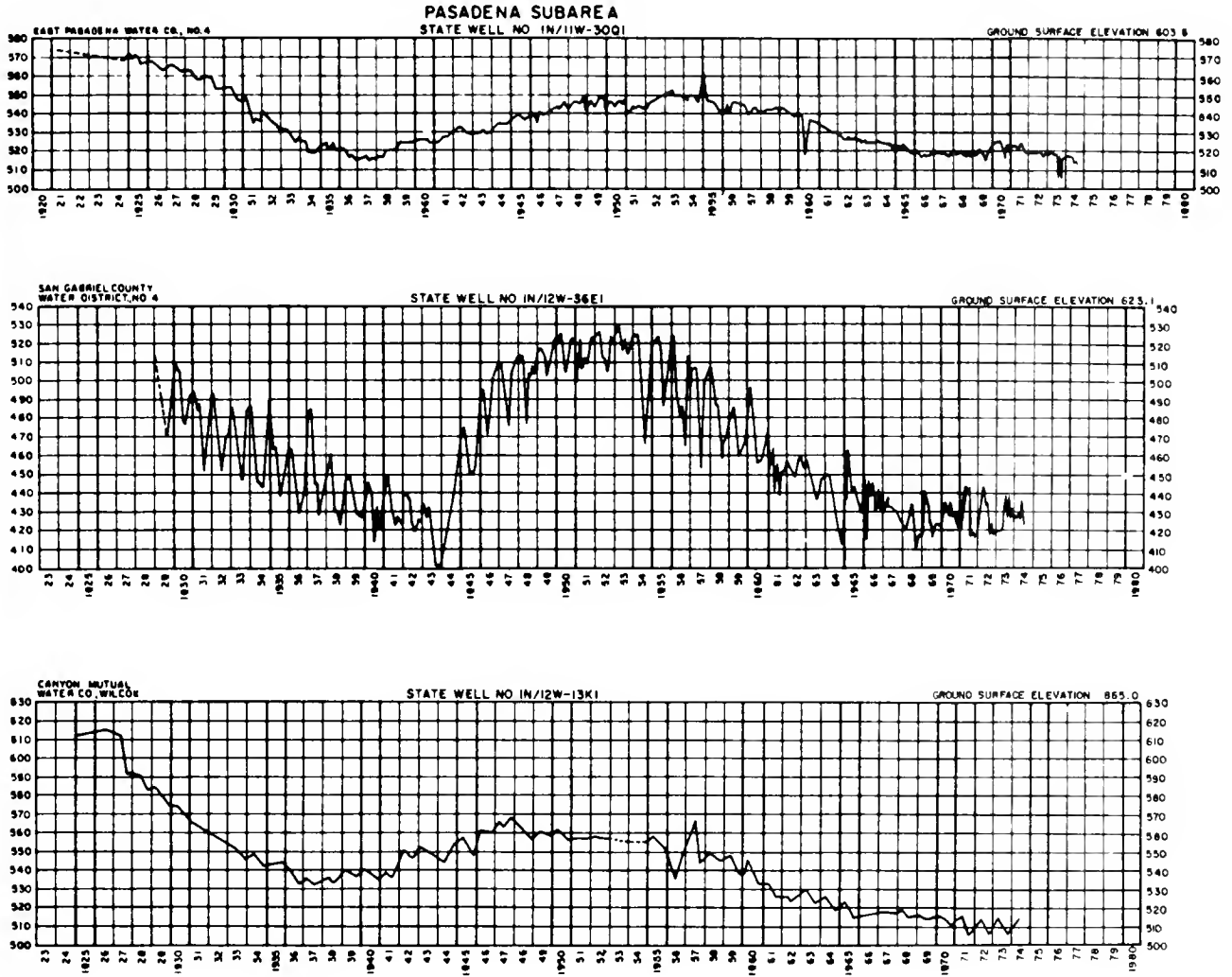


FIGURE 8 (Continued)

ELEVATION OF WATER LEVELS AT WELLS IN FEET - U.S.G.S. DATUM

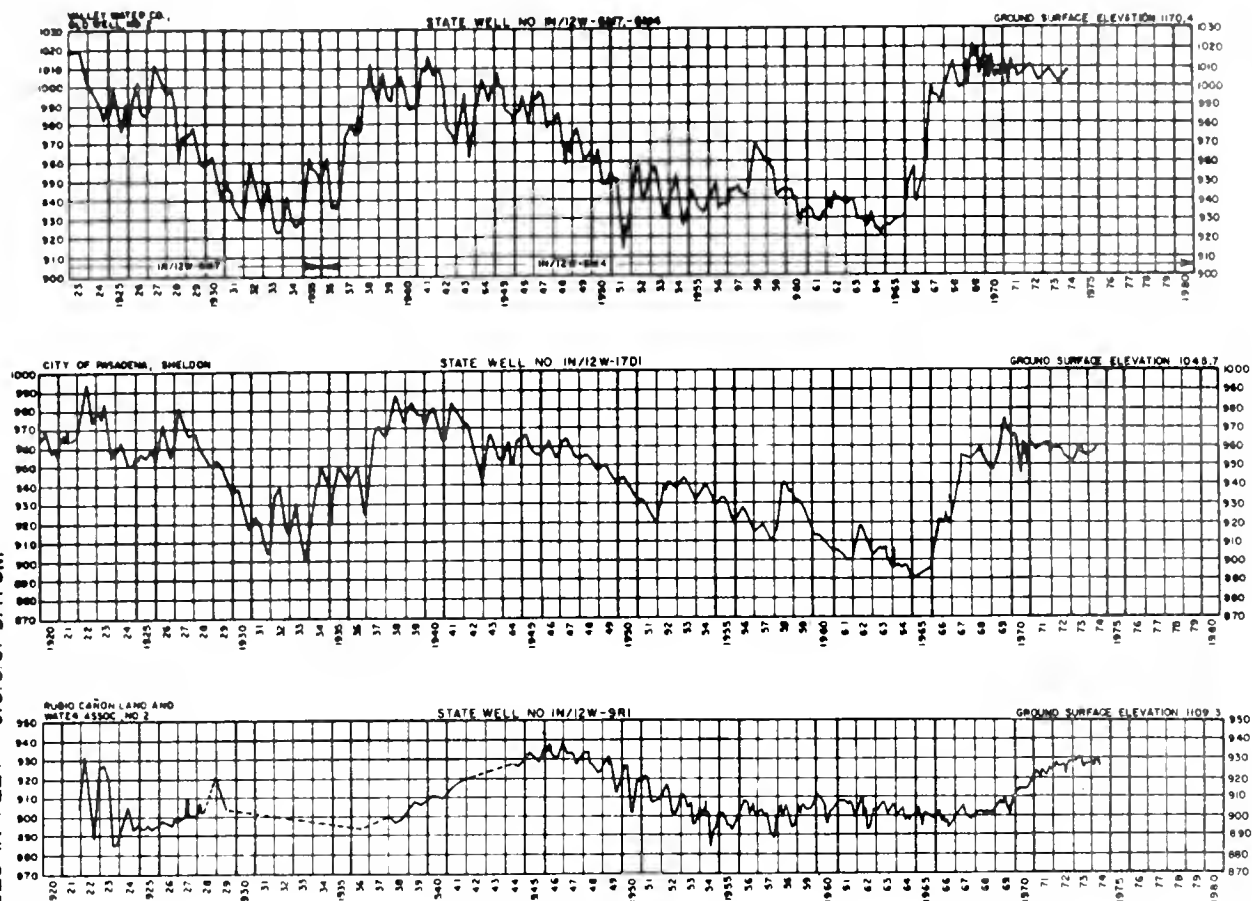


Figure 9-FLUCTUATION OF WATER LEVELS AT WELLS IN THE MONK HILL BASIN

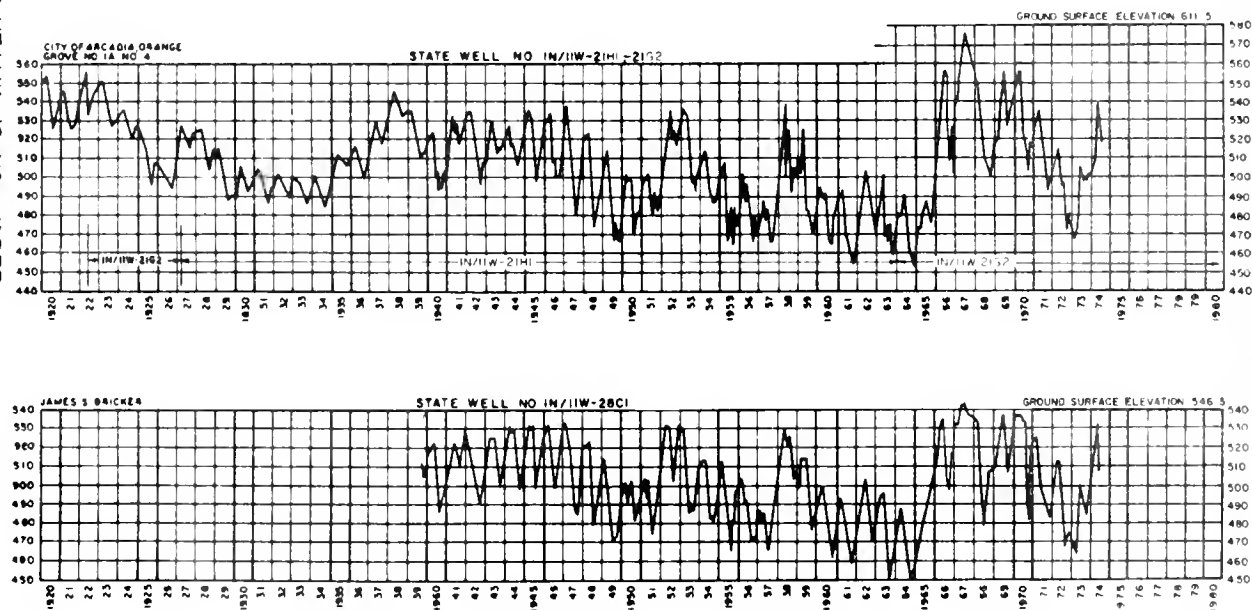


Figure 10 - FLUCTUATION OF WATER LEVELS AT WELLS IN THE SANTA ANITA SUBAREA

Water Well Numbering in the Raymond Basin

In the 1973-74 season, the Raymond Basin contained 127 wells, 70 active, including 3 owned by two nonparties (Fig. 12).

Each well in the Raymond Basin can be located by its State Well Number, a numbering system based on the U.S. Public Land Survey. Each number

consists of township, range, and section number; a letter to identify the 40-acre tract in which the well is located; a sequence number to show the chronological order in which the well was identified; and a letter to represent the base and meridian. The letter "S" is sometimes omitted because all wells in the Raymond Basin are situated in relation to the San Bernardino base and meridian. The parts of State Well Number 1N/12W-25Q01S are illustrated in the following breakdown:

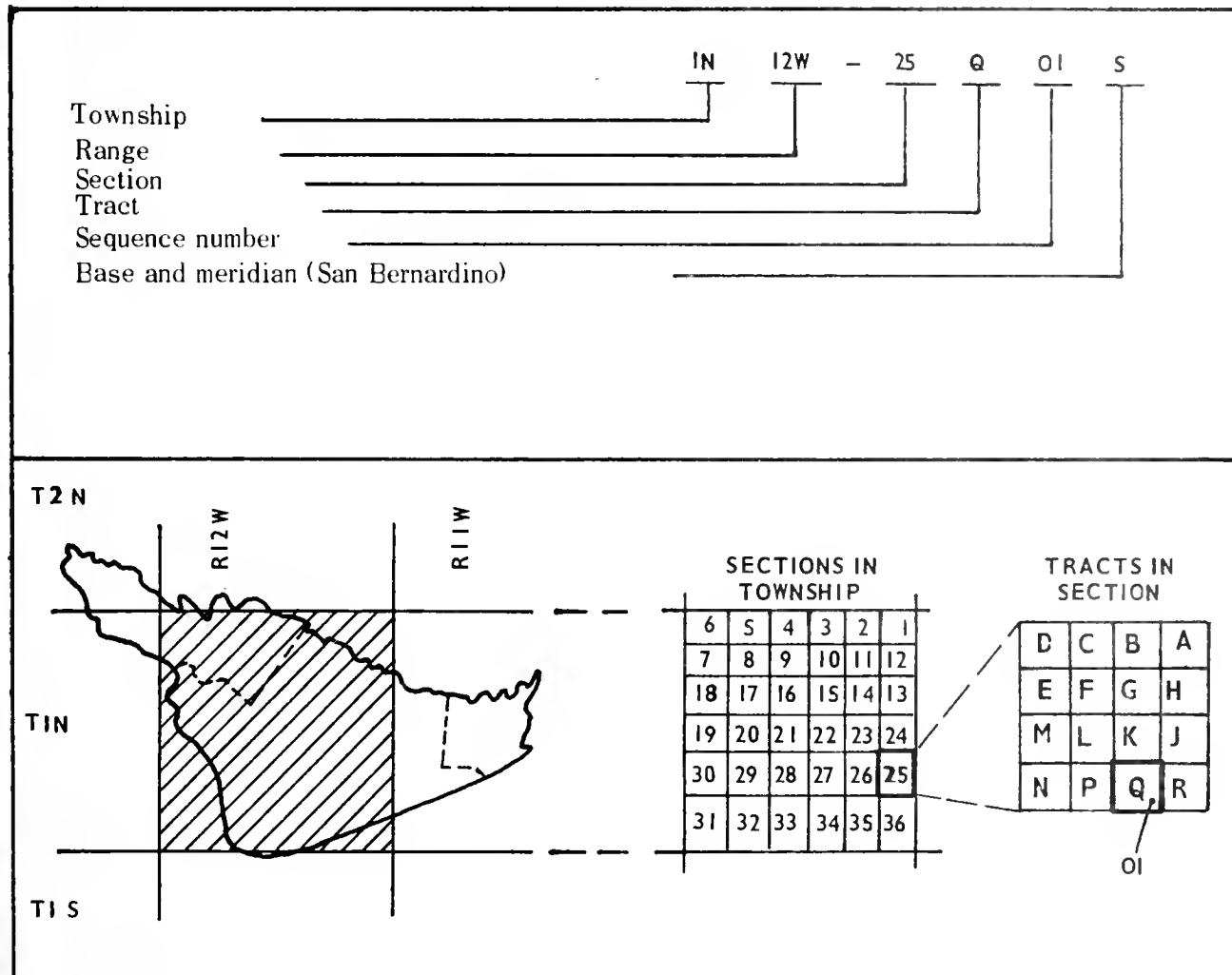


Figure 11. LOCATING STATE WELL NO. 1N/12W-25Q01S

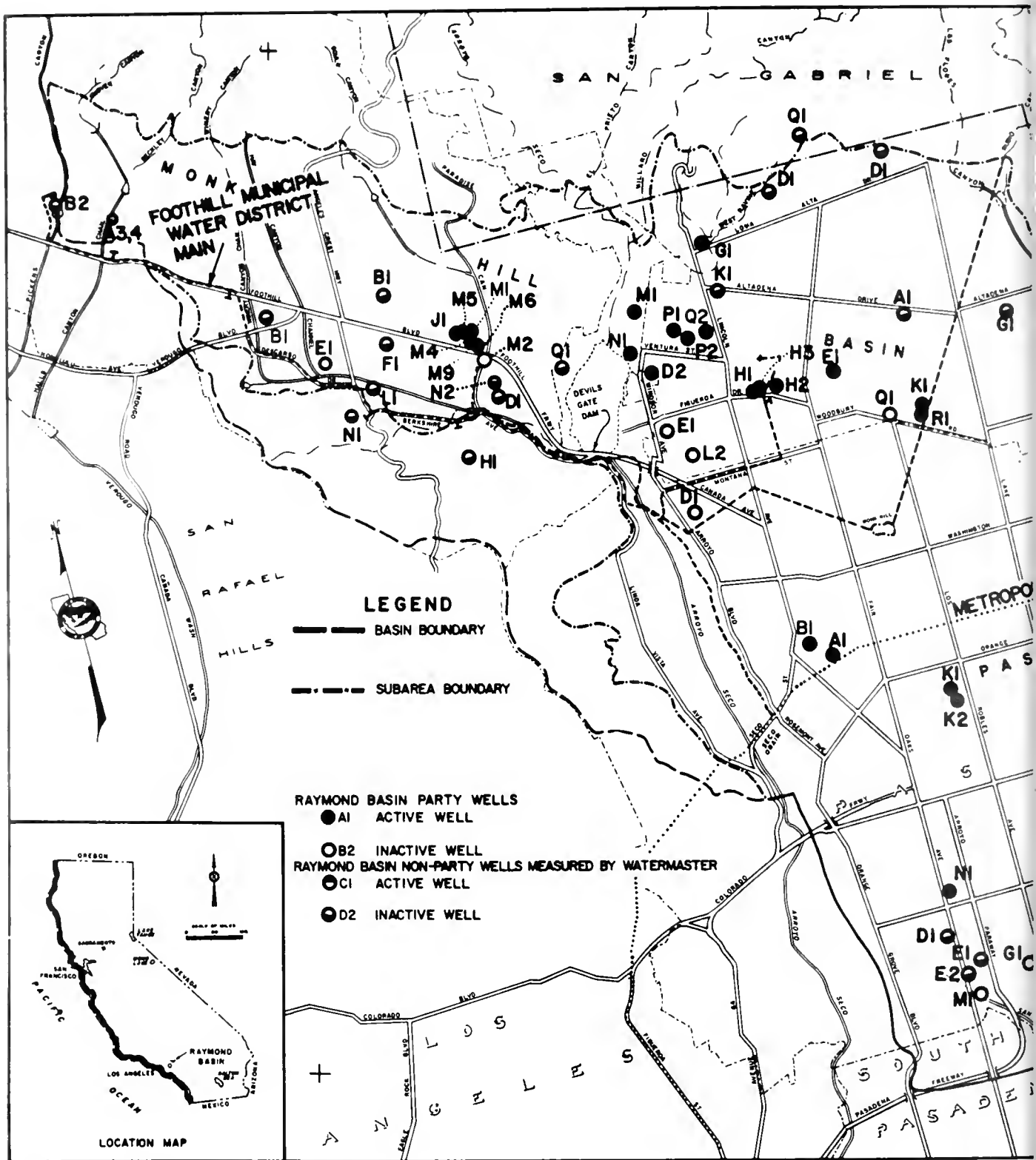
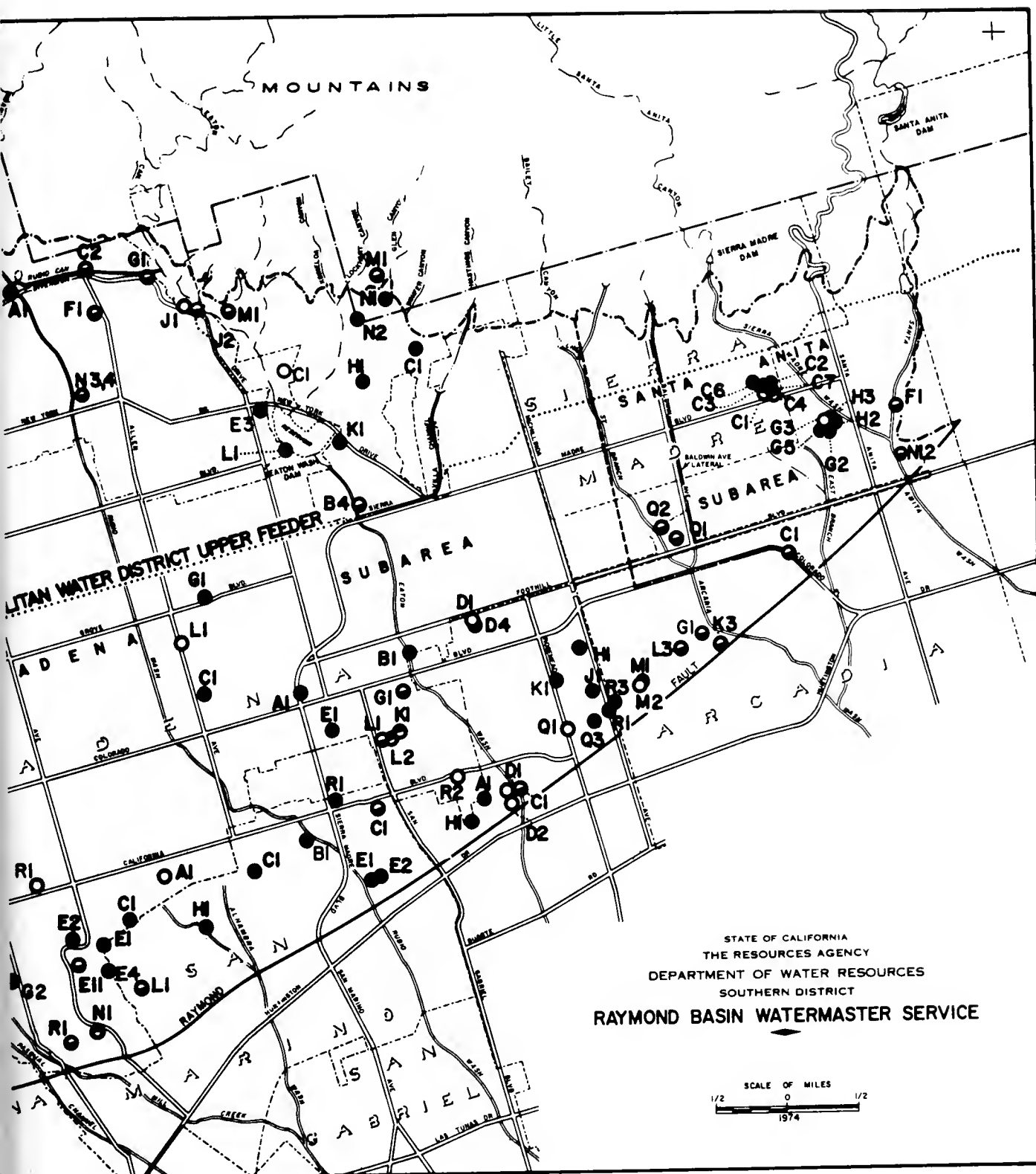


Figure 12.



WELL LOCATIONS

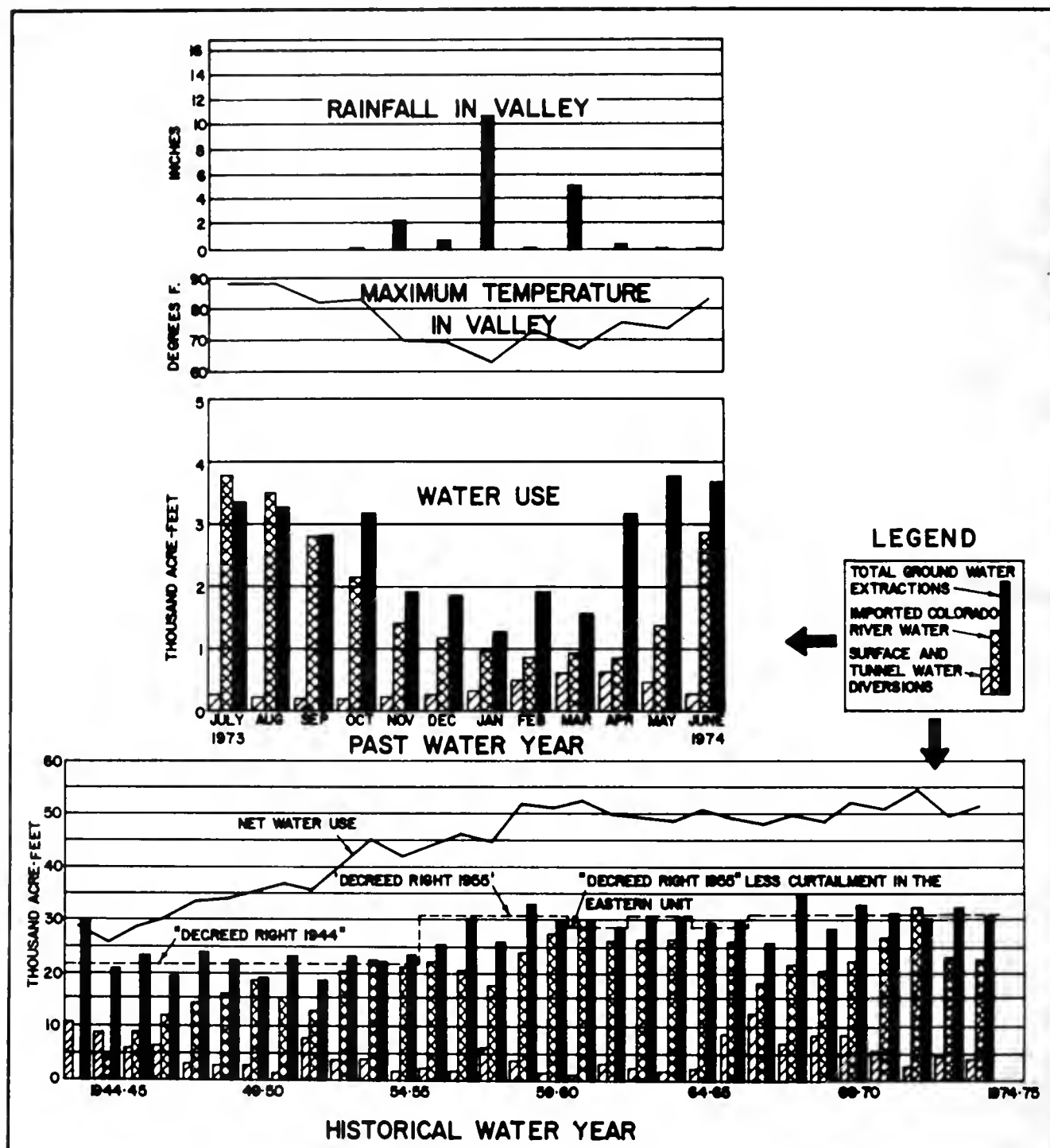


Figure 13. CLIMATIC CONDITIONS AND WATER USE

III. WATER USE

Net water use is the sum of ground water extractions, salvage water extractions (City of Sierra Madre), surface water diversions tributary to the Raymond Basin, and water imported to the Basin, minus the exports from the Basin. Water diverted for spreading is not included in net water use computations (Table 5).

Rapid population growth between 1944 and 1958 caused a substantial increase in net water use by parties. Despite greater numbers of people, use of local ground water supplies has been held to the decreed rights since 1944. Population growth has leveled off since 1959.

Most of the increased water requirements has been met by Colorado River water imports. Historic water use and the correlation between current climatic conditions and monthly water use are presented in Figure 13. Rainfall values are based on valley station records and temperature values are based on the average temperatures in the Cities of Pasadena and Sierra Madre (Table 1).

The bar graphs in Figure 13 are striking proof that climate is one of the most important phenomena that regulate water use. For example, as rainfall increases and temperatures drop, water use declines.

Ground Water Extractions

The Raymond Basin Judgment limits the amount of ground water that each party can extract annually from the Basin or can release to the Water Exchange Pool for pumping by other parties. Recipients of exchange water may pump the amount released to them in addition to their "Decreed Right 1955."

The metered ground water production from each active well in the Basin is listed by party in Appendix B, which

shows the total ground water production reported by each party.

The gross water supply includes all sources of water necessary to supply each party's total water requirement. A report on the gross water supply of all parties appears in Table 6. Several parties who extracted ground water from the basin adjacent to the Raymond Basin are also shown in Table 6.

Surface Water Diversion

The Judgment allows certain parties to divert surface water tributary to the Raymond Basin. Parties also divert and import nontributary surface water. Two types of diversions are used: surface and tunnel. Surface diversions collect surface water, such as streams or springs. Tunnel diversions collect subsurface water in either horizontal or vertical galleries. The water is diverted to a reservoir, treatment plant, service facility, or spreading grounds (Table 6).

Use of Imported Water

Colorado River water was first available in June 1941 to the City of Pasadena. However, the City did not begin to use it continuously until June 1945. The amount imported during 1973-74 by each party connected with the Foothill Municipal Water District and by the City of Pasadena is shown in Table 6.

Ground Water Exports

The Watermaster assumes that parties with service areas both inside and outside the Basin export ground water only if their water sales in the Basin are less than the sum of water pumped, diverted, and purchased in the Basin. Since the City of Pasadena's supply comes from several sources, its total export contains Colorado River water, diverted surface water, and ground water (Table 6).

**Table 5. DECREEED RIGHT AND AMOUNT OF WATER EXTRACTED AND EXCHANGED
In acre-feet**

Party	(1) "Decreed Right, 1955"	(2) Allowable Carryover from 1972-73	(3) Spreading Credit ^{a/}	(4) Net Lease ^{b/}	(5) Allowable Extraction (1)+(2)+(3)+(4)=(5)	(6) Amount Extracted	(7) Balance (5)-(6)	(8) Allowable Carryover into 1974-75 ^{c/}
Western Unit								
<u>Monk Hill Basin</u>								
La Canada Irrigation District	100.00	57.60 ^{d/}			157.60	158.29	- 0.69	- 0.69
Las Flores Water Company	249.00	- 8.68	+ 33.10		273.42	258.89	- 14.53	- 14.53
Lincoln Avenue Water Company	567.00	- 343.14	+ 508.77		732.63	720.75	- 11.88	- 11.88
Pasadena Cemetery Assoc.	91.00	35.08			126.08	83.21	- 42.87	- 42.87
Pasadena, City of	4,464.00	- 13.85	+ 403.07		4,853.22	4,953.37	- 100.15	- 100.15
Rubio Canon Land and Water Assn.	1,221.00	10.89	+ 171.50		1,403.39	1,280.33	- 123.06	- 123.06 ^{j/}
Valley Water Company	797.00	154.93			951.93	953.40	- 1.47	- 1.47
Subtotals	7,489.00	- 107.17	+ 1,116.44		8,498.27	8,408.24	+ 90.03	+ 56.26
<u>Pasadena Subarea</u>								
Alhambra, City of	1,031.00	260.40 ^{d/}	- 100.00		1,191.40	1,075.44	- 115.96	- 103.10
Arcadia, City of	1,167.00	11.28			1,178.28	1,214.00	- 35.72	- 35.72
California-American Water Company	2,299.00	83.74			2,382.74	2,371.68	- 11.06	- 11.06
Canyon Mutual Water Company	127.00	133.00 ^{d/}	- 258.00		2.00	4.97	- 2.97	- 2.97
East Pasadena Water Company	515.00	173.40 ^{d/}	- 225.00		463.40	535.00	- 71.60	- 71.60
H. E. Huntington Library and Art Gallery	262.00 ^{e/}	31.05			293.05	304.70	- 11.65	- 11.65
Kinneloe Irrigation Dist.	179.00 ^{e/}	228.60 ^{d/}	+ 6.89	- 325.00	89.49	108.91	- 19.42	- 19.42
Mira Loma Mutual Water Co.	148.00	106.00 ^{d/}		- 194.00	60.00	64.66	- 4.66	- 4.66
Monrovia, City of	951.00	- 12.14			938.86	894.91	- 43.95	- 43.95
Osborn Company	12.00	55.80 ^{d/}		- 67.00	0.80	12.52	- 11.72	- 11.72
Pasadena, City of	8,343.00	- 1,432.53	+ 981.09	+ 1,169.00	9,060.56	8,708.96	- 351.60	- 351.60
Royal Laundry & Dry Cleaning Company	160.00 ^{f/}	- 19.48			140.52	153.48	- 12.96	- 12.96
San Gabriel County Water District	1,091.00	- 3.98			1,087.02	943.33	- 143.69	- 109.10
Sunny Slope Water Company	1,558.00	465.25			2,023.25	2,022.63	- 0.62	- 0.62
Subtotals	17,843.00	+ 80.39	987.98	0.00	18,911.37	18,415.19	+ 496.18	+ 448.73
Totals - Western Unit	25,332.00	- 26.78	+ 2,104.42	0.00	27,409.64	26,823.43	+ 586.21	+ 504.99
Recapitulation for City of Pasadena	12,807.00	- 1,446.38	+ 1,384.16	+ 1,169.00	13,913.78	13,662.33	+ 251.45	+ 251.45
Eastern Unit								
<u>Santa Anita Subarea</u>								
Arcadia, City of	3,526.00	- 477.40			3,048.60	3,164.82 ^{h/}	- 116.22	- 116.22
Sierra Madre, City of	1,764.00	0.00	+ 5,970.38 ^{g/}		7,734.38	1,828.71 ^{h/}	- 5,905.67	- 5,905.67 ^{g/}
Totals - Eastern Unit	5,290.00	- 477.40	+ 5,970.38	0.00	10,782.98	4,993.53	+ 5,789.45	+ 5,789.45
GRAND TOTALS	30,622.00	- 504.18	+ 8,074.80	0.00	38,192.62	31,816.96	+ 6,375.66	+ 6,294.44

^{a/} Unless noted, pursuant to modification of Judgment, dated January 17, 1974. See Tables 3 and 8.

^{b/} See Appendix C and Table 10 for information concerning leases.

^{c/} Based on modification of Judgment dated June 24, 1974. Actual carryover into 1974-75 is shown under Column (7).

^{d/} Pursuant to modification of Judgment dated June 24, 1974. See Chapter IV.

^{e/} Decreed Right (229.00 acre-feet), less 50 acre-feet released to the Exchange Pool.

^{f/} Decreed Right (110.00 acre-feet), plus 50 acre-feet received from the Exchange Pool.

^{g/} Salvage credit. See Table 2.

^{h/} Includes 64.71 acre-feet of salvaged water pumped, which is not part of the safe yield.

^{j/} Includes 0.96 acre-feet of spreading credit.

Table 6. GROSS WATER SUPPLY
In acre-feet

Party	Total ground water extractions		Total surface water diversions		Total water		Net water use within the basin
	Inside basin	Outside basin ^{a/}	Tributary to Raymond Basin ^{b/}	Nontributary to Raymond Basin ^{c/}	Imported ^{d/}	Exported	
Alhambra, City of	1,075.44	(9,929.47)			- 1,075.44		0.00
Arcadia, City of	4,378.82	(9,624.94)			- 387.57		3,991.25
California-American Water Co.	2,371.68	(4,416.63)			- 212.09		2,159.59
Canyon Mutual Water Company	4.97						4.97
East Pasadena Water Company	535.00	(1,338.55)			- 148.23		386.77
Henry E. Huntington Library and Art Gallery	304.70						304.70
Kinneloa Irrigation District	108.91		237.61				346.52
La Canada Irrigation District	158.29			(148.26)	2,020.70		2,178.99
Las Flores Water Company	258.89		74.67		504.03		837.59
Lincoln Avenue Water Company	720.75		123.34		1,036.92		1,881.01
Mira Loma Mutual Water Company	64.66		114.42				179.08
Monrovia, City of	894.91	(6,569.59)					894.91
Osborn Company	12.52						12.52
Pasadena Cemetery Association	83.21						83.21
Pasadena, City of	13,662.33		2,967.27		16,571.05	- 4,569.99	28,630.66
Royal Laundry and Dry Cleaning Company	153.48						153.48
Rubio Canon Land and Water Association	1,280.33		108.40		846.72		2,235.45
San Gabriel County Water District	943.33					- 943.33	0.00
Sierra Madre, City of	1,828.71 ^{d/}		715.58 ^{e/}				2,544.29
Sunny Slope Water Company	2,022.63	(2,097.24)					2,022.63
Valley Water Company	953.40				1,821.78		2,775.18
TOTALS	31,816.96		4,341.29		22,801.20	- 7,336.65	51,622.80

^{a/} Used by parties in areas outside the Raymond Basin.
^{b/} Does not include surface diversions for spreading as follows: Kinneloa Irrigation District - 8.27 acre-feet; Las Flores Water Company - 41.38 acre-feet; Lincoln Avenue Water Company - 641.71 acre-feet; City of Pasadena (Eaton Canyon) - 1,026.58 acre-feet; (Arroyo Seco) - 525.28 acre-feet; Rubio Canyon Land and Water Association - 201.04 acre-feet.
^{c/} Colorado River water except as noted.
^{d/} Includes 64.71 acre-feet of salvage water credit that was extracted.
^{e/} Does not include 3,029.10 acre-feet diverted for spreading to recharge the ground water.

Nonparty Ground Water Extraction

The Watermaster continues to monitor nonparty ground water extractions. Two nonparty pumpers in the Western Unit continue to extract ground water:

Huntington-Sheraton Hotel
State Well No. 1N/12W-34N1

13.83 acre-feet

Las Encinas Hospital
State Well No. 1N/12W-25K1
State Well No. 1N/12W-25L2

82.02 acre-feet

The hotel extractions were estimated by the plant engineer. The hospital based its water use on water meter readings.

Exports of Sewage

In the 1967-68 season, to measure sewage outflow, the Watermaster selected key stations on large sewage trunk lines leaving the Basin across the Raymond Fault and was granted temporary permission to install recorders at each. The next season, the Watermaster installed F-type water stage recorders in 12 trunk lines for one week (Fig. 14).

This program was repeated periodically and a trend of increasing outflow has been established. The increase is apparently commensurate with the cultural and population changes in the Basin.

The following yearly outflows were computed: 1968-69 -- 20,321 acre-feet; 1970-71 -- 20,012 acre-feet; and 1972-73 -- 21,552 acre-feet.

Historic estimates include: 1938-39 -- 5,900 acre-feet; and 1951-52 -- 9,500 acre-feet.

The Watermaster presently proposes to make outflow measurements during the 1975-76 water year.

Flow at Key Stations (1972-73)

Map code	Station	Acre-feet
1.	Grand Avenue	2,444
2.	Garfield Avenue	1,192
3.	Los Robles Avenue	2,064
4.	Old Mill Road	77
5.	Virginia Road	1,618
6.	San Marino Avenue	3,654
7.	Sierra Madre Blvd.	212
8.	N. Gainsborough St.	4,450
9.	Sunset Blvd.	3,875
10.	Old Ranch Road	214
11.	Colorado Place	596
12.	Colorado Blvd. at First Street	1,156
	TOTAL	21,552

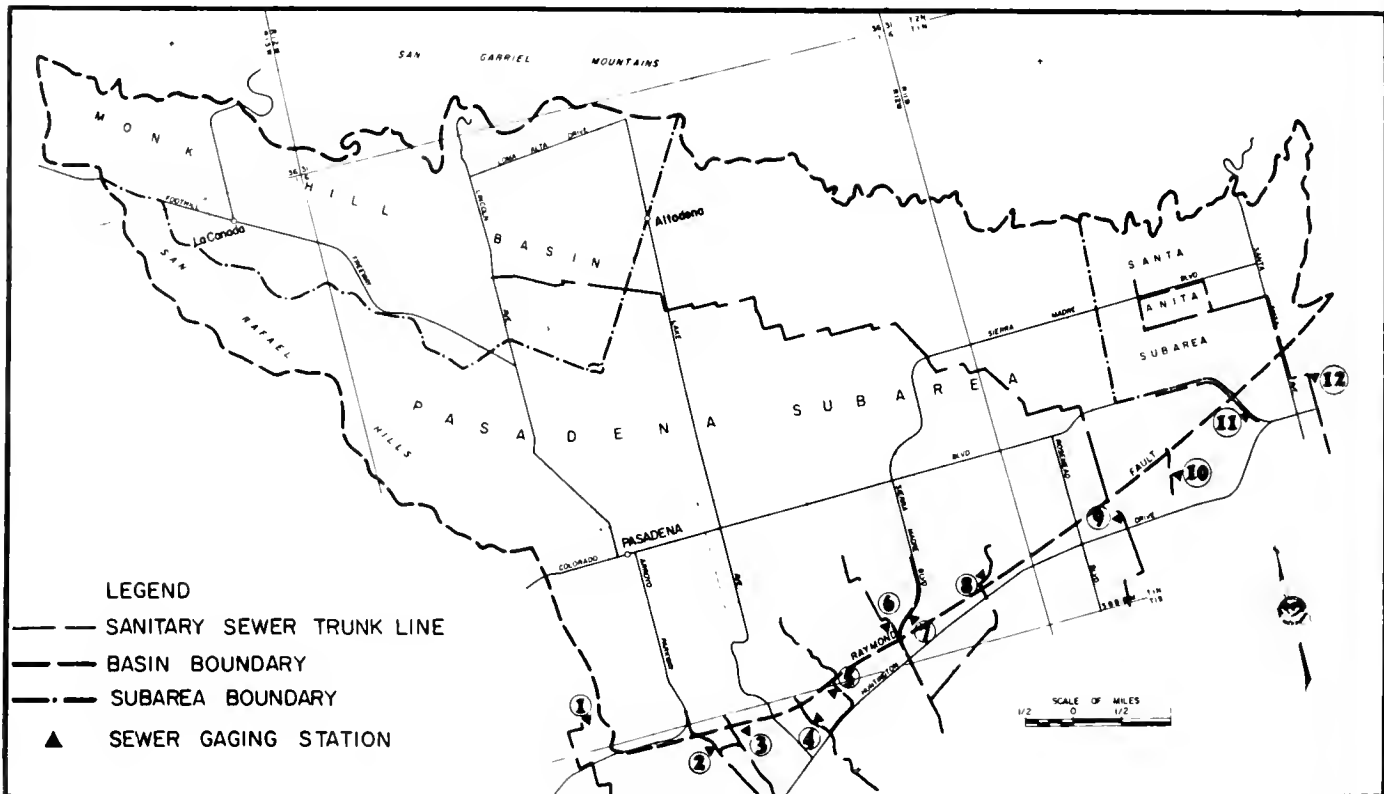


Figure 14. SEWAGE GAGING STATIONS

Water Quality

Quality is an important consideration in a water supply. The water must be fit for beneficial uses. Quantity and quality are interrelated variables that should be considered in water resources management. Water quality is a result of and depends upon both natural and man-made phenomena.

Water requirements in the Basin are supplied from local ground water, tunnel water, diverted surface water and imported Colorado River water. As shown in Table 7, the supply is of excellent quality; it meets all standards for beneficial uses.

Ground Water

The quality of ground water extracted from the Basin is generally within the recommended limits set by the U.S.

Public Health for drinking water standards. Except for a few wells where fluoride concentration is above 1.0 mg/l, it is of good mineral quality and suitable for most beneficial uses. The chemical character is largely calcium bicarbonate and ranges from soft to hard.

Tunnel Water

Several parties in the Basin use abandoned mines and tunnels for collecting seepage from mountain crevices. The chemical character of the water is similar to ground water (calcium bicarbonate character) and it ranges from soft to hard.

Surface Water

Surface water, while its direct use is restricted due to the increased use of the watershed by recreationists, still constitutes an important part of the

Table 7. REPRESENTATIVE MINERAL ANALYSIS OF WATER

Well number or source	Date sampled	ECx10 ⁶ at 25°C	pH	Mineral constituents in								Parts per million (ppm) Equivalents per million (epm)					Total dissolved solids ppm	Total hardness as CaCO ₃ ppm
				Ca	Mg	Na	K	CO ₃	HCO ₃	SO ₄	Cl	NO ₃	F	B				
IMPORTED WATER																		
Colorado River Water (MWD) at Pasadena Sunset Intake	1-16-74	1200	8.26	$\frac{31.2}{1.56}$	$\frac{11}{0.90}$	$\frac{216}{9.40}$	-	-	$\frac{151.3}{2.48}$	$\frac{288}{5.99}$	$\frac{104}{2.93}$	$\frac{1.4}{0.02}$	$\frac{0.66}{0.03}$	-	748	124		
SURFACE WATER																		
Arroyo Seco at John L. Behner Treatment Plant (raw)	1-16-74	316	8.23	$\frac{37.6}{1.88}$	$\frac{11.7}{0.96}$	$\frac{14}{0.61}$	-	-	$\frac{153.7}{2.52}$	$\frac{29}{0.60}$	$\frac{9.6}{0.27}$	$\frac{6.82}{0.11}$	$\frac{0.68}{0.04}$	-	216	142		
TUNNEL WATER																		
City of Sierra Madre West Tunnel	2-15-73	354	7.4	$\frac{43}{2.17}$	$\frac{12}{0.99}$	$\frac{13}{0.55}$	$\frac{1.2}{0.03}$	-	$\frac{163}{2.67}$	$\frac{20}{0.42}$	$\frac{9}{0.26}$	$\frac{4.1}{0.07}$	$\frac{1.2}{0.06}$	-	213	158		
GROUND WATER																		
Monk Hill Basin																		
1N/12W-08H02 (Las Flores No. 2)	8-22-73	782	7.6	$\frac{37}{1.85}$	$\frac{16}{1.32}$	$\frac{105}{4.57}$	$\frac{3.0}{0.08}$	$\frac{0}{0}$	$\frac{148}{2.43}$	$\frac{150}{3.12}$	$\frac{66}{1.66}$	$\frac{26.7}{0.43}$	$\frac{0.7}{0.1}$	0	477	158		
Pasadena Subarea																		
1N/11W-30H01 (Monrovia Chapman 6)	8-20-73	444	7.6	$\frac{52}{2.59}$	$\frac{13}{1.07}$	$\frac{21}{0.91}$	$\frac{2.0}{0.05}$	$\frac{0}{0}$	$\frac{205}{3.36}$	$\frac{25}{0.52}$	$\frac{18}{0.51}$	$\frac{17.0}{0.27}$	$\frac{1.0}{0.0}$	0	249	183		
1N/12W-21K01 (Pasadena Garfield Well)	8-22-73	327	7.8	$\frac{27}{1.35}$	$\frac{8.0}{0.66}$	$\frac{27}{1.17}$	$\frac{2.0}{0.05}$	$\frac{0}{0}$	$\frac{106}{1.74}$	$\frac{25}{0.52}$	$\frac{20}{0.56}$	$\frac{28.7}{0.46}$	$\frac{1.0}{0.0}$	0	190	100		
Santa Anita Subarea																		
1N/11W-21C06 (Sierra Madre No. 5)	2-15-73	376	7.4	$\frac{46}{2.30}$	$\frac{10}{0.82}$	$\frac{15}{0.65}$	$\frac{1.1}{0.03}$	-	$\frac{167}{2.74}$	$\frac{22}{0.46}$	$\frac{10}{0.28}$	$\frac{3.9}{0.28}$	$\frac{1.0}{0.05}$	-	225	156		

supply for the Basin. Its chemical character is calcium-bicarbonate and is moderately hard to hard.

Imported Water

Untreated Colorado River water is predominately sodium-calcium sulfate in character and is very hard. After treatment to reduce hardness, it changes to sodium sulfate in character as shown in Table 7. Samples taken at the City of Pasadena's Sunset turnout between 1954 and 1974 indicate a high TDS of 904 mg/l in January 1957 and a low of 596 mg/l in October 1958. The average TDS for the 20-year period is approximately 741 mg/l.

Areawide Water Quality Monitoring

In compliance with the Beilenson Health Act, the Department of Health, on November 26, 1973, requested the Raymond Basin Advisory Board to formulate an areawide water quality monitoring program. On May 10, 1974, the Board authorized the Watermaster to prepare the program. A draft was made in June and copies were sent to the Department of Health and the Board for review.

Title 17, Part 1, Chapter 5 of the

California Administrative Code defines the limits of concentration acceptable for domestic use. The monitoring program requires sampling once every five years of all domestic water sources, except Colorado River through the facilities of MWD, for analysis for general mineral and physical constituents. Sources from selected key locations will also have to be sampled and tested every five years for trace elements, pollutants, pesticides and herbicides. These key stations include five wells, two tunnels and the three major tributary streams in the Basin.

Results of analyses obtained by the participants will be submitted to the Department of Health through the Watermaster.

The monitoring program does not include analysis for radioactivity, carbon chloroform extract, and carbon alcohol extract. The Department of Health will monitor such constituents within individual service areas on a as required case-by-case basis. Bacteriological monitoring of individual distribution systems are to be made by the individual water purveyors to comply with Article 3, Part 1, Chapter 5 of the California Administrative code. Analysis of imported water will be made by MWD.

IV. ADMINISTRATION OF THE JUDGMENT

The Raymond Basin Advisory Board, created by the Los Angeles County Superior Court, assists and advises the Watermaster on matters of policy and budget preparation. Its members are:

K. A. Johnson, Chairman

City of Pasadena

L. W. Jubb, Secretary, Monk Hill Basin

L. Magoffin, Pasadena Subarea

J. A. Grivich, Santa Anita Subarea

B. Westkamper, Santa Anita Subarea

Messrs. Grivich and Westkamper alternate annually; Mr. Grivich serves in odd-numbered years and Mr. Westkamper serves in even-numbered years.

To manage the Basin effectively, the Board initiated a cooperative water resources management study during fiscal year 1967-68. Begun under a March 21, 1968 agreement between the Department of Water Resources and the City of Pasadena for all parties, the program has as its objective the design of a mathematical model of the Basin to simulate the dynamic behavior of a ground water basin and surface water facilities under various operational plans. The Basin was divided into 79 subzones so that the ground water level information gained would be sufficiently detailed for long-range planning.

Before projections could be made, the model's accuracy had to be verified against historic hydraulic data. Numerous alternative plans for using ground and surface water together were then imposed on the model. With the data thus obtained, a wide range of operational and economic information is being developed for management planning. The analysis was completed during the 1970-71 fiscal year and the findings of the investigation were published as DWR Bulletin 104-6, June 1971.

Court Actions 1973-74

During the 1973-74 water year, two modifications of the Raymond Basin Judgment were approved. The first, on January 17, 1974, adjudicates a plan for spreading and recapturing surface water diversions. The second, on June 24, 1974, incorporates the following elements: (1) statement of the manner of disposal of accumulated carryover by specified parties in the Western Unit of the Basin; (2) a modification in the flexibility provisions for allowable pumping; (3) a program for the voluntary control of pumping patterns in the Monk Hill Basin, Pasadena subarea, and Eastern Unit; (4) confirmation of transfers and ownership of water rights; (5) establishment of a water quality monitoring program for the Raymond Basin.

These modifications result from studies and agreements among the Watermaster, the Raymond Basin Advisory Board, and the parties to the Judgment. They are designed to respond to changing conditions in the basin, incorporate refinements based on accumulated experience, and establish improved control techniques.

A brief description of the key elements of the modifications follows.

Metered Surface Diversions for Spreading

A special study, "Spreading Surface Water in the Raymond Basin Area", was completed by the Department of Water Resources in January 1973, using the mathematical model described earlier. The Advisory Board subsequently accepted the recommendations of the study and a program of spreading and recapturing surface water diversions was begun on May 1, 1973.

A "Motion to Modify Judgment to allow Spreading and Recapturing by Pumping of Certain Surface Water Diversions" was prepared and presented to the Court for

a hearing On November 9, 1973. No objections to the motion were made and the Judgment was modified and signed on January 17, 1974.

The modification includes a clause which allows the program to be effective retroactively to May 1, 1973. The Kinneloa Irrigation District and the City of Pasadena began their metered diversions for spreading on May 1, 1973; the Lincoln Avenue Water Company and Rubio Canon Land and Water Association, on June 1, 1973; and Las Flores Water Company, on January 3, 1974. Each of the surface diversion facilities and metering devices have been inspected and approved by the Watermaster. The facilities will be inspected every two months to certify their proper operation.

In accordance with the Modification of the Judgment, the Watermaster will determine the amount of water diverted for spreading and the LACFCD will certify the amount spread. Parties will be allowed to extract 80 percent of the amount spread and certified.

A summary of the amounts spread and certified during 1973-74, together with the amounts available for recapture and amount recaptured is shown in Table 8. Amounts are included for May 1973 and June 1973 which have been approved by the Court for recapture. Figures shown in Table 8 have been incorporated into Table 5 and their certification shown in Appendix C.

Carryover of Decreed Right

The Judgment prohibited annual extractions from the Raymond Basin exceeding 120 percent of the "Decreed Right 1955", plus or minus exchange water. It also provided that the total amount pumped or taken by any party in any 60 consecutive months could not exceed the amount released to it by the Exchange Agreement and five times the Party's decreed right.

There has been substantial agreement that this accounting procedure is difficult to manage and causes occasional misunderstanding of the manner in which allowed pumping rights could be carried over from one accounting year to the next.

Table 8. SUMMARY OF CREDIT FOR SPREADING DIVERSIONS OF SURFACE WATERS

Party	1972-73				1973-74				
	Diverted	Spread	Credit	Extracted	Diverted	Spread	Credit	Extracted	Balance
Kinneloa Irrigation Dist.	0.34	0.34	0.27	0	8.27	8.27	6.62	6.89	0
Las Flores Water Company	0	0	0	0	41.38	41.38	33.10	33.10	0
Lincoln Avenue Water Co.	24.70	24.70	19.76	0	641.71	611.26	489.01	508.77	0
Pasadena, City of Monk Hill Basin	0	0	0	0	525.28	503.84	403.07	403.07	0
Pasadena Subarea	199.79	199.79	159.83	0	1,026.58	1,026.58	821.26	981.09	0
Rubio Canyon Land and Water Association	13.34	13.34	10.67	0	201.04	201.04	160.83	170.54	0.96
TOTALS	238.17	238.17	190.53	0	2,444.26	2,392.37	1,913.89	2,103.46	0.96

Meetings were held among the Watermaster, the Advisory Board, and interested parties, during which new carryover and accounting procedures were developed to become a part of a motion to modify the Judgment. The motion was heard before the Court on June 24, 1974, and no objections having been filed or made at the hearing, the motion was granted, and the modification of the Judgment was dated June 24, 1974.

This modification of Judgment provides: "...a party may exceed its decreed right to the extent that it has acquired ... the decreed right of any other party or as may become necessary in the case of emergency or for other reasonable cause as determined by the Watermaster ... parties to this action may take in any twelve-month period beginning July 1, ... an amount not exceeding one hundred ten percent (110%) of its decreed right... plus any amount of allowable underpumping ... If a party in any twelve-month period, beginning July 1, takes less than its decreed right, or less than the amount allowed after reduction for any excess extractions, the amount of such underpumping, but not exceeding ten percent (10%) of its decreed right, may be carried over and taken during the next succeeding year."

These provisions become effective commencing with the 1974-75 year. However, as is shown in Table 12, the former method of calculating carryover will be applied this year.

The figures in Column 8 of Table 5 are shown for the information of the parties. These are the amounts that would be carried over under the new method of calculating carryover. This method will be used next year and will be carried into the 1975-76 year.

The modification of Judgment also provides for the manner of disposal of

accumulated carryover by specified parties in the Western Unit. These parties may withdraw each year for the next five years, commencing in 1973-74, the amounts listed below. These amounts shall be in addition to their decreed rights.

<u>Name of Party</u>	<u>Annual carryover credit, in acre-feet</u>
Alhambra, City of	260.4
Canyon Mutual Water Co.	133.0
East Pasadena Water Co.	173.4
Kinneloa Irrigation Dist.	228.6
La Canada Irrigation Dist.	57.6
Mira Loma Mutual Water Co.	106.0
Osborn Company	55.8

Pumping Patterns

A committee selected by the Raymond Basin Advisory Board, whose membership includes representatives of the Watermaster, the City of Pasadena, and parties to the Judgment, prepared the "Report on the Control of Ground Water Levels in the Raymond Basin by Means of Adjusting Pumping Patterns".

Based on recommendations in this report, Paragraph 5 of the Modification of Judgment requires the Watermaster to study pumping patterns in the Basin and report his recommendations to the Advisory Board not less than twice each year. The recommendations will include advice as to whether more or less water should be pumped from areas of influence and will be calculated to: (a) minimize interference among parties; (b) conserve energy, expense, and local water supplies; and (c) provide most efficient, equitable use of ground water. The recommendations will recognize the right of each party to pump its decreed right and is advisory only. The success of the program is dependent on the voluntary cooperation of the parties to the Judgment.

Exchange Pool

The Exchange Water Agreement, authorized by the Court, permits the exchange and use of water rights among all parties of the agreement. Participation in the Exchange Agreement is open to all parties to the agreement.

The Exchange Agreement was useful during the early years subsequent to the Court's Judgment when only Pasadena had access to Colorado River water. However, at present six parties use Colorado River water and fewer water rights need be exchanged. The history of Exchange Pool transactions appears in Table 9.

Table 9. EXCHANGE WATER POOL TRANSACTIONS

Season	Quantity of water purchased, in acre-feet				Average cost, per acre-foot	
	Western Unit		Eastern Unit		Western Unit	Eastern Unit
	Monk Hill Basin	Pasadena Subarea	Santa Anita Subarea	Raymond Basin Area		
1944-45	925	53	0	978	\$ 29.88	
45-46	550	82	600	1,232	17.49	4.00
46-47	2,750	64	300	3,114	29.39	4.00
47-48	3,150	142	0	3,292	29.88	
48-49	5,150	115	0	5,265	32.16	
49-50	3,782	160	300	4,242	34.77	15.00
1950-51	3,938	96	700	4,734	31.82	15.00
51-52	3,929	100	0	4,029	35.55	15.00
52-53	3,929	72	0	4,001	31.62	
53-54	3,929	0	0	3,929	31.29	
54-55	3,929	215	0	4,144	34.35	
55-56	2,850	41	0	2,891	34.14	
56-57	1,700	10	0	1,710	27.89	
57-58	1,050	0	0	1,050	26.67	
58-59	0	70	0	70	20.00	
59-60	0	45	0	45	25.00	
1960-61	0	25	0	25	20.00	
61-62	0	40	600	640	18.00	31.00
62-63	0	25	0	25	17.00	
63-64	0	30	0	30	17.00	
64-65	0	35	200	235	17.00	64.55
65-66	0	25	300	325	17.00	37.58
66-67	0	0	0	0		
67-68	0	10	0	10	10.00	
68-69	0	40	0	40	25.00	
69-70	0	50	0	50	25.00	
1970-71	0	40	0	40	25.00	
71-72	0	45	0	45	25.00	
72-73	0	45	0	45	35.00	
73-74	0	45	0	45	35.00	
TOTALS	41,461	1,787	3,000	46,348		

Each April the Watermaster mails an Exchange Pool form to all parties, opening the Pool to inter-member water right leasing. This year, the Royal Laundry and Dry Cleaning Company leased 45 acre-feet of water for \$35 per acre-foot from the Kinneloa Irrigation District. The total cost of the water was \$1,575.

Transfers of Decreed Right

Another method of obtaining additional pumping rights is by lease or sale transaction between parties. Table 10 lists the transactions, parties, and amounts involved for 1973-74.

Samples of our recommended lease and sale agreements will be included in a forthcoming informational document entitled "Watermaster Service in the Raymond Basin - General Information Policies and Procedures". A draft of this document has been sent to the parties for their review and comments.

Overextractions

In restricting ground water extractions from the Raymond Basin, it is recognized that there are unavoidable fluctuations in water usage from year to year. To provide for this fluctuation, a flexibility clause is included in the June 24, 1974 Modification of Judgment which allows each party to vary its extractions within stated limits.

Essentially, it permits a party to over-extract or underpump as much as 10 percent of its Decreed Right, 1955 with the equivalent debit or credit being applied to its extraction in the subsequent water year.

Table 11 summarizes all overextractions and violations of the Judgment based on the Modification. It shows that 11 parties exceeded their allowable extraction for 1973-74. The Modification of Judgment did not apply until July 1, 1974. For this reason no party was in violation of the Modification of Judgment. If the Modification of Judgment had applied, the Osborn Company and Royal Laundry and Dry Cleaning Company would have been in violation and subject to a recommendation that Court Action be taken against them.

Table 10. TRANSFERS OF DECREED RIGHT, 1955

<u>Party</u>	<u>Transaction and amount</u> <u>in acre-feet</u>			<u>Party</u>
<u>Pasadena Subarea</u>				
Alhambra, City of	Leased	100.00	to	Pasadena, City of
Canyon Mutual Water Company	Leased	258.00	to	Pasadena, City of
East Pasadena Water Company	Leased	225.00	to	Pasadena, City of
Kinneloa Irrigation District	Leased	325.00	to	Pasadena, City of
Mira Loma Mutual Water Company	Leased	194.00	to	Pasadena, City of
Osborn Company	Leased	67.00	to	Pasadena, City of

Table 11. OVEREXTRACTIONS

Party	(1)	(2)	(3)	(4)	(5)	Overextraction		
	"Decreed Right, 1955"	Allowable carryover from 1972-73	Spreading credit and net leases	Allowable extraction (1)+(2)+(3)=(4)	Amount extracted	(6) Amount (4)-(5)=(6)	(7) Allowable ^{a/} (10%)(1)=(7)	(8) In Percent (6)÷(7) 100=(8)
<u>Monk Hill Basin</u>								
WESTERN UNIT								
La Canada Irrigation Dist.	100.00	+ 57.60		157.60	158.29	- 0.69	10.0	0.69
Pasadena, City of	4,464.00	- 13.85	+ 403.07	4,853.22	4,953.37	- 100.15	446.4	2.24
Valley Water Company	797.00	+ 154.93		951.93	953.40	- 1.47	79.7	0.18
<u>Pasadena Subarea</u>								
Arcadia, City of	1,167.00	+ 11.28		1,178.28	1,214.00	- 35.72	116.7	3.06
Canyon Mutual Water Company	127.00	+ 133.00	- 258.00	2.00	4.97	- 2.97	12.7	2.33
East Pasadena Water Company	515.00	+ 173.40	- 225.00	463.40	535.00	- 71.60	51.5 ^{b/}	13.9
H. E. Huntington Library and Art Gallery	262.00	+ 31.05		293.05	304.70	- 11.65	26.2	4.44
Kinneloe Irrigation District	179.00 ^{c/}	+ 228.60	- 318.11	89.49	108.91	- 19.42	22.9 ^{d/}	8.48 ^{d/}
Mira Loma Mutual Water Co.	148.00	+ 106.00	- 194.00	60.00	64.66	- 4.66	14.8	3.14
Osborn Company	12.00	+ 55.80	- 67.00	0.80	12.52	- 11.72	1.2 ^{e/}	97.66
Royal Laundry & Dry Cleaning Co.	160.00 ^{c/}	- 19.48		140.52	153.48	- 12.96	11.0 ^{f/}	11.78
EASTERN UNIT								
<u>Santa Anita Subarea</u>								
Arcadia, City of	3,286.00	- 477.40		3,048.60	3,164.82	- 116.22	352.6	3.29
TOTAL	11,457.00	+ 440.93	- 659.04	11,238.89	11,628.12	- 389.23	1,145.7	

^{a/} Based on modification of Judgment dated June 24, 1974, which does not apply until July 1, 1974.

^{b/} Party requested permission to exceed permissible overextraction limit and Watermaster approved that request. Party is not in violation of Judgment because of this approval and footnote (a).

^{c/} Includes Exchange Pool transaction.

^{d/} Based on Decreed Right 1955 and does not include Exchange Pool transaction.

^{e/} Party did not request permission to overextract and is in violation of the Judgment and the modification of Judgment applied.

^{f/} Footnotes (d) and (e) apply.

The East Pasadena Water Company requested permission to exceed the permissible over-extraction limit and received approval from the Watermaster. For this reason, they would not have been in violation of the Judgment if the Modification had been in effect.

Allowable Extractions in 1974-75

Table 12 summarizes the allowable extractions for all parties for the 1974-75 water year. It incorporates the carryover as calculated under the

Table 12. ALLOWABLE EXTRactions IN 1974-75

Party	: Decreed : Right, 1955	: Carryover : from 1973-74	: Allowable ^{a/} : extraction
Alhambra, City of	1,031.00	376.36 ^{e/}	1,407.36
Arcadia, City of			
Pasadena Subarea	1,167.00	- 35.72	1,131.28
Santa Anita Subarea	3,526.00	- 116.22	3,409.78
California-American Water Co.	2,299.00	11.06	2,310.06
Canyon Mutual Water Company	127.00	130.03 ^{e/}	257.03
East Pasadena Water Company	515.00	101.80 ^{e/}	616.80
H. E. Huntington Library and Art Gallery	262.00 ^{b/}	- 11.65	250.35
Kinneloa Irrigation District	179.00 ^{b/}	209.18 ^{e/}	388.18
La Canada Irrigation District	100.00	56.91 ^{e/}	156.91
Las Flores Water Company	249.00	14.53	263.53
Lincoln Avenue Water Company	567.00	11.88	578.88
Mira Loma Mutual Water Company	148.00	101.34 ^{e/}	249.34
Monrovia, City of	951.00	43.95	994.95
Osborn Company	12.00	44.00 ^{e/}	56.00
Pasadena Cemetery Association	91.00	42.87	133.87
Pasadena, City of			
Monk Hill Basin	4,464.00	- 100.15	4,363.85
Pasadena Subarea	8,343.00	351.60	8,694.60
Royal Laundry and Dry Cleaning Company	160.00 ^{b/}	- 12.96	147.04
Rubio Canon Land & Water Ass'n.	1,221.00	123.06 ^{c/}	1,344.06 ^{c/}
San Gabriel County Water District	1,091.00	143.69	1,234.69
Sierra Madre, City of	1,764.00	5,905.67 ^{d/}	7,669.67
Sunny Slope Water Company	1,558.00	0.62	1,558.62
Valley Water Company	797.00	- 1.47	795.53
TOTAL	30,622.00	7,390.46	38,012.46

^{a/} Does not include 1974-75 sales and leases of water right and spreading credit.

^{b/} Includes Exchange Pool transactions.

^{c/} Includes 0.96 acre-feet of spreading credit.

^{d/} Includes spreading credit which varies each month.

^{e/} Includes accumulated carryover as provided by Modification of Judgment of June 24, 1974.

method which existed before the June 24, 1974 Modification of Judgment. The new method provided by the Modification of Judgment will be used next year and will be part of the 1975-76 allowable extractions.

It should be understood that allowable extractions are a part of a dynamic process and the figures shown in Table 12 are those amounts which are correct at the beginning of the water year. Allowable extractions can become larger or smaller in 1974-75, in accordance with yet indeterminable factors; i.e., sales, leases, and spreading credit.

Variations from Safe Yield

Table 13 summarizes annual extractions from 1950-51 to the present and compares average annual extraction with safe yield. It also shows years in which extractions exceeded safe yield. At present, average annual extractions in each subarea are less than safe yield, an occurrence that is undoubtedly aided by six years of above-average total precipitation during the last nineteen years. However, the second lowest precipitation of record during 1971-72 and below average for the past period 1969-72 and 1973-74 have narrowed the gap.

Table 13. VARIATION OF ANNUAL EXTRACTIIONS FROM SAFE YIELD

July 1 through June 30	Annual extractions				
	Western Unit		Subtotal	Eastern Unit ^a	Raymond Basin Area
	Monk Hill Basin	Pasadena Subarea			
1950-51	7,098	13,418	20,516	2,861	23,377
51-52	5,903	10,750	16,653	2,041	18,694
52-53	5,973	12,471	18,444	4,535	22,979
53-54	6,283	11,765	18,048	4,163	22,211
54-55	6,420	12,783	19,203	4,399	23,602
Average annual extractions	6,363	11,683	18,046	3,639	21,685
Safe yield 1938 ^b	6,039	11,621	17,660	3,791	21,451
Average difference ^c	+ 324	+ 62	+ 386	- 152	+ 234
1955-56	6,319	14,060	20,379	4,687	25,066
56-57	7,057	17,474	24,531	5,685	30,216
57-58	5,916	16,054	21,970	3,823	25,793
58-59	8,160	18,027	26,187	7,018	33,205
59-60	7,992	16,428	24,420	4,858	29,278
1960-61	7,141	18,796	25,937	3,342 ^d	29,279
61-62	6,742	18,419	25,161	3,494 ^d	28,657
62-63	8,084	16,630	24,714	5,268	29,982
63-64	7,937	17,449	25,406	4,778	30,184
64-65	7,450	17,682	25,132	3,599 ^d	28,731
65-66	6,583	19,397	25,980	3,388 ^d	29,368
66-67	5,096	17,241	22,337	3,369	25,706
67-68	7,059	19,984	27,043	7,031	34,074
68-69	8,397	15,490	23,887	4,511	28,398
69-70	8,422	18,710	27,132	5,445	32,577
1970-71	8,287	17,091	25,378	5,612	30,990
71-72	7,408	17,359	24,767	5,794	30,561
72-73	9,217	17,331	26,548	5,801	32,349
73-74	8,408	18,415	26,823	4,929	31,752
Average annual extractions	7,446	17,477	24,923	4,965	29,888
Safe yield 1952 ^e	7,489	17,843	25,332	5,296	30,628
Average difference ^c	- 33	- 366	- 399	- 425	- 740

^a/ Excludes salvaged water pumped by City of Sierra Madre.
^b/ Effective 1944-45 through 1954-55 and excludes nonparty pumpage.
^c/ Extractions greater than safe yield: (+).
Extractions less than safe yield: (-).
^d/ Reduction in extraction by order of Watermaster.
^e/ Effective 1955-56 through present and excludes nonparty pumpage.

V. ADMINISTRATIVE COSTS

Under the provisions of Section 4201, California Water Code, the cost of Watermaster service is shared equally by the State and the parties to the Judgment.

Before each December 15, the Watermaster, in cooperation with the Raymond Basin Advisory Board, prepares the budget for the fiscal year, beginning the next July 1. The 1973-74 budget, approved by the Board on December 14, 1972, is shown in Table 14.

The Raymond Basin budget contains two sections (Table 15). Part "A" supports the cost of administering the Raymond Basin Judgment. Each party's share of that cost is directly proportionate to the party's "Decreed Right 1955".

Table 14. APPROVED BUDGET FOR 1973-1974

<u>PART "A" - Cost Other Than Exchange Water Program</u>		
Salaries and wages	\$20,730	
Operating expenses	7,055	
Retirement and compensation plus administration	<u>5,321</u>	
Total Amount		\$33,106
One-half payable by State		\$16,554
One-half payable by parties		\$16,554
Less estimated carryover from 1972-73		<u>0</u>
Total collectible from parties		\$16,554
<u>PART "B" - Cost of Exchange Water Program</u>		
Salaries and wages	\$ 80	
Retirement and compensation plus administration	<u>20</u>	
Total Amount		\$ 100
One-half payable by State		\$ 50
One-half payable by participants in release and receipt of water		50
TOTAL ESTIMATED COST OF Watermaster Service - July 1, 1973 through June 30, 1974		<u>\$33,206</u>

Table 15. APPORTIONMENT OF 1973-74 BUDGET

PART "A"

Party	"Decreed Right 1955", in acre-feet	Apportionment paid
Alhambra, City of	1,031	\$ 557.35
Arcadia, City of	4,693	2,537.00
California-American Water Company	2,299	1,242.82
Canyon Mutual Water Company	127	68.65
East Pasadena Water Company, Ltd.	515	278.40
Henry E. Huntington Library and Art Gallery	262	141.64
Kinneloa Irrigation District	229	123.80
La Canada Irrigation District	100	54.06
Las Flores Water Company	249	134.61
Lincoln Avenue Water Company	567	306.52
Mira Loma Mutual Water Company	148	80.01
Monrovia, City of	951	514.10
Osborn Company	12	6.49
Pasadena Cemetery Association	91	49.19
Pasadena, City of	12,807	6,923.36
Royal Laundry and Dry Cleaning Company	110	59.46
Rubio Canon Land and Water Association	1,221	660.06
San Gabriel County Water District	1,091	589.79
Sierra Madre, City of	1,764	953.60
Sunny Slope Water Company	1,558	842.24
Valley Water Company	<u>797</u>	<u>430.85</u>
TOTALS	30,622	\$16,554.00
Part "B"		
Party	Amount of water exchanged, in acre-feet	Amount paid
Kinneloa Irrigation District	50	\$ 25.00
Royal Laundry and Dry Cleaning Company	50	<u>25.00</u>
TOTALS		\$ 50.00

Part "B" supports the cost of operating the Raymond Basin Exchange Pool. Only the parties participating in the Pool were charged for that cost. Each party's share of the 1973-74 budget is shown in Table 15. No penalties were assessed for late payments.

Income and expenditures under both parts of the budget appear in Table 16. Credit or debit balances shown there are carried forward into the next fiscal year, as directed by Sections 4358 and 4406 of the State Water Code and Paragraph XIII of the Judgment.

Costs of Determining Salvage
Credit for City of Sierra Madre

On June 30, 1973, an adjusted credit balance of \$5.37 remained in the special account established to pay the cost of determining amounts of water salvaged by the City of Sierra Madre. During the 1973-74 season, on request, the City deposited \$400 to this account. Expenditures during this season totaled \$408.86. A deficit balance of \$3.49 remained in the account on June 30, 1974.

Table 16. STATEMENT OF 1973-74 INCOME AND EXPENDITURES

Item	Parties	State	State and Parties
<u>Income</u>			
From Part "A" of the budget	\$16,554.00	\$16,554.00	\$33,108.00
From Part "B" of the budget	50.00	50.00	100.00
Carryover from 1972-73	230.02	0.00	230.02
Total Income	\$16,834.02	\$16,604.00	\$33,438.02
<u>Expenditures^{a/}</u>			
From Part "A" of the budget			
Salaries and wages	\$11,673.98	\$11,673.98	\$23,347.96
Operating expenses			
Miscellaneous indirect costs ^{b/}	3,667.68	3,667.68	7,335.36
Mobil Equipment rental and operation	264.70	264.70	529.40
Printing annual report	290.29	290.30	580.59
Drafting	28.51	28.52	57.03
Electronic machine computing	791.49	791.49	1,582.98
Equipment	1,069.26	1,069.26	2,138.52
From Part "B" of the budget			
Salaries and wages	34.00	34.00	68.00
Operating expenses	16.00	16.00	32.00
Total Expenditures	\$17,835.91	\$17,835.93	\$35,671.84
BALANCE	<u>-\$ 1,001.89^{c/}</u>		

^{a/} Adjusted for 1972-73 delayed charges and credits.

^{b/} Rent, utilities, auto rental, janitorial services, communications, retirement, employees' health plan, and workmen's compensation insurance.

^{c/} Subject to delayed charges and credits.

APPENDIX A

**MEAN DAILY DISCHARGE AT SURFACE RUNOFF STATIONS
OPERATED BY THE WATERMASTER
1973-74 WATERMASTER YEAR**

APPENDIX A: MEAN DAILY DISCHARGE AT SURFACE RUNOFF STATIONS OPERATED BY THE WATERMASTER. 1973-74 WATERMASTER YEAR

STATION: ARCADIA WASH													STATION NO. WATERMASTER YEAR	
MEAN DAILY DISCHARGE in second-foot													7545A	1973-74
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	.7	.3	.4	1.2	1.1	5.8	3.7	.3	.3	1.9	.6	.4	1	
2	.7	.4	.4	.9	1.7	.2	.3	.3	6.2	7.1	.4	.4	2	
3	.4	.4	.4	.8	1.1	.1	.3	.3	11.8	.3	.5	.5	3	
4	.5	.4	.6	.9	.7	.1	52.1	.4	.2	.4	.3	.4	4	
5	.6	.4	.4	.9	2.0	.1	8.2	.3	.2	.4	.4	.5	5	
6	.7	.6	.4	.8	.4	.1	69.8	.3	.3	.3	.3	.4	6	
7	.7	.3	.4	.8	.6	.1	109.8	.3	49.2	.6	.3	.4	7	
8	.4	.4	.4	.9	.5	.2	8.4	.3	36.8	.6	.3	.4	8	
9	.4	.4	.4	1.1	.4	.2	.4	.3	.4	.7	.3	.4	9	
10	.9	.6	.6	.7	.4	.2	.4	.3	.3	.3	.3	.4	10	
11	.9	.4	.4	.5	.5	.2	.4	.3	.3	.3	.3	.4	11	
12	.9	.3	.6	.6	1.0	.2	.4	.3	.3	.3	.3	.5	12	
13	.9	.3	.5	.6	.4	.3	.7	.4	.3	.4	.3	.6	13	
14	1.0	.4	.6	.6	.5	.3	.4	.3	.3	.3	.3	.6	14	
15	1.1	.3	.5	.5	.5	.3	.3	.4	.3	.4	.5	.5	15	
16	1.4	.4	.5	.7	.9	.3	.9	.3	.3	.4	.3	.5	16	
17	1.4	.3	.7	.4	7.9	.3	3.4	.4	.3	.5	.3	.5	17	
18	1.7	.3	.6	.6	7.9	.7	.4	.5	.4	.4	.2	1.0	18	
19	2.0	.4	.6	.7	.7	.3	.3	.7	.4	.4	.2	.8	19	
20	2.6	.4	.7	.7	.3	.2	7.1	.4	.4	.4	.3	.4	20	
21	3.0	.4	.6	.7	.3	.2	.5	.3	.4	.4	.3	.5	21	
22	2.4	.4	.9	.7	11.3	2.2	.7	.4	.7	.7	.3	.4	22	
23	2.9	.4	.9	.7	.3	.2	.3	.3	.3	.5	.3	.4	23	
24	2.1	.3	1.3	.7	.3	.2	.3	.3	.4	.5	.3	.5	24	
25	1.0	.4	1.3	.6	.2	.2	.3	.3	.4	.5	.3	.5	25	
26	.1	.4	1.3	1.6	.2	.3	.3	.3	.6	.5	.3	.5	26	
27	.3	.4	1.6	.8	.2	.3	.7	.4	4.1	.5	.3	.5	27	
28	.4	.4	1.2	.9	.2	.3	.4	.9	.3	.6	.4	.6	28	
29	.4	.4	1.1	1.2	.2	.3	.7	.4	.4	.5	.4	.5	29	
30	.5	.4	1.0	1.4	.3	.3	.7	.4	.4	.5	.4	.5	30	
31	.5	.5	.4	.4	.4	.3	.7	.3	.3	.4	.4	.5	31	
MEAN	1.1	.4	.7	.9	1.4	.5	8.7	.4	7.6	.7	.5	.5	MEAN	
MAX.	3.0	.5	1.6	2.6	11.3	5.8	109.8	.9	49.2	7.1	4.4	1.0	MAX.	
MIN.	.1	.3	.4	.5	.2	.1	.3	.3	.2	.3	.2	.4	MIN.	
ACFT	69.8	27.0	42.3	53.8	85.1	28.8	535.3	20.7	236.0	41.1	29.4	29.9	ACFT	

WATERMASTER YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	WD	DAY	TIME	DISCHARGE	GAGE HT	WD	DAY	TIME	ACRE-FFFT
1.67	358.27	1.33	3	7	1912	.05	.01	7	25	2400	1195.20

STATION: ARROYO SECO													STATION NO. WATERMASTER YEAR	
MEAN DAILY DISCHARGE in second-foot													A225A	1973-74
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	NO FLOW	NO FLOW	NO FLOW	.0	.0	.9	.0	.7	.3	.7	.4	.2	1	
2	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	.6	.0	.3	4.7	4.4	.3	.2	2	
3	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	.1	.0	.4	19.5	.5	.3	.2	3	
4	NO FLOW	NO FLOW	NO FLOW	.3	NO FLOW	.1	9.7	.5	7.7	.5	.3	.2	4	
5	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	.0	11.9	.5	.5	.7	.4	.2	5	
6	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	79.5	.4	.5	.5	.4	.1	6	
7	NO FLOW	NO FLOW	NO FLOW	.2	NO FLOW	NO FLOW	107.8	.5	15.7	.5	.4	.0	7	
8	NO FLOW	NO FLOW	NO FLOW	.3	NO FLOW	NO FLOW	61.5	.5	78.9	.5	.4	.0	8	
9	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	17.1	.9	25.4	.5	.4	.0	9	
10	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	15.1	.5	17.9	.5	.4	.0	10	
11	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	10.9	.5	14.1	.5	.4	.0	11	
12	NO FLOW	NO FLOW	NO FLOW	.1	.2	NO FLOW	4.8	.5	4.0	.4	.4	.0	12	
13	NO FLOW	NO FLOW	NO FLOW	.0	NO FLOW	NO FLOW	11.4	.5	9.2	.4	.4	.0	13	
14	NO FLOW	NO FLOW	NO FLOW	.3	NO FLOW	NO FLOW	10.5	.5	4.2	.4	.3	.0	14	
15	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	9.7	.5	1.5	.4	.2	.0	15	
16	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	9.4	.5	.7	.4	.2	.0	16	
17	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	NO FLOW	13.4	.5	.6	.4	.1	.0	17	
18	NO FLOW	.1	NO FLOW	.0	26.9	NO FLOW	15.7	.6	.6	.4	.1	.0	18	
19	NO FLOW	NO FLOW	NO FLOW	.1	2.4	NO FLOW	4.1	.4	.4	.4	NO FLOW	.0	19	
20	NO FLOW	NO FLOW	.1	NO FLOW	.1	NO FLOW	4.4	.4	.4	.4	NO FLOW	.0	20	
21	NO FLOW	NO FLOW	NO FLOW	NO FLOW	.1	NO FLOW	4.1	.4	.4	.4	NO FLOW	.0	21	
22	NO FLOW	NO FLOW	NO FLOW	NO FLOW	.2	NO FLOW	.7	.4	.4	.4	NO FLOW	.8	22	
23	NO FLOW	NO FLOW	NO FLOW	NO FLOW	2.2	NO FLOW	.4	.4	.4	.4	NO FLOW	.3	23	
24	NO FLOW	NO FLOW	NO FLOW	NO FLOW	.1	NO FLOW	.5	.4	.6	.4	NO FLOW	.6	24	
25	.2	NO FLOW	NO FLOW	NO FLOW	.1	NO FLOW	.5	.4	.6	.4	NO FLOW	.4	25	
26	NO FLOW	NO FLOW	NO FLOW	NO FLOW	.0	NO FLOW	.5	.4	.4	.4	NO FLOW	.8	26	
27	NO FLOW	NO FLOW	NO FLOW	NO FLOW	.0	NO FLOW	.5	.4	2.3	.4	NO FLOW	.0	27	
28	NO FLOW	NO FLOW	NO FLOW	.2	NO FLOW	NO FLOW	.5	.6	.7	.4	NO FLOW	.8	28	
29	NO FLOW	NO FLOW	.7	NO FLOW	NO FLOW	NO FLOW	.5	.4	.6	.4	NO FLOW	.8	29	
30	NO FLOW	NO FLOW	.0	NO FLOW	.0	NO FLOW	.5	.4	.7	.4	NO FLOW	.8	30	
31	NO FLOW	.4	.0	.0	.0	.0	.6	.4	.4	.4	.8	.0	31	
MEAN	.0	.0	.0	.0	1.1	.1	12.0	.5	4.9	.4	.2	.1	MEAN	
MAX.	.2	.4	.2	.7	24.9	.9	187.8	.6	78.9	4.4	.4	.8	MAX.	
MIN.	.0	.0	.0	.0	.0	.0	.0	.3	.3	.6	.8	.8	MIN.	
ACFT	.5	1.3	.4	2.7	44.2	3.2	739.3	26.7	474.0	75.3	11.7	5.1	ACFT	

WATERMASTER YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	WD	DAY	TIME	DISCHARGE	GAGE HT	WD	DAY	TIME	ACRE-FFET
1.78	127.47	1.54	1	7	8938	.0	.0	7	1	0800	1316.60

APPENDIX A (continued)

STATION: BROADWAY BRN													STATION NO. 74125		WATERMASTER YEAR 1973-74	
MEAN DAILY DISCHARGE in second-foot													74125		1973-74	
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY			
1	.6	8.4	.7	5.3	1.3	13.5	8.8	.7	.7	6.9	.2	.4	1			
2	.6	8.9	.8	8.8	1.6	.9	.8	.5	6.6	.9	.3	.4	2			
3	.6	7.8	.6	6.4	1.5	2.4	.4	.8	3.6	.7	.3	.4	3			
4	.6	7.8	2.3	6.9	1.3	.9	25.9	.7	1.1	.7	.4	.2	4			
5	.6	6.6	.9	7.2	1.9	.6	8.6	.6	.7	.4	1.1	.2	5			
6	.6	7.3	.8	7.8	2.3	.8	84.9	.8	1.2	.4	2.9	1.1	6			
7	.6	9.3	.8	8.1	1.9	.9	82.6	.6	8.3	.4	.6	.8	7			
8	.6	8.8	.9	8.3	1.9	.7	18.9	.8	6.2	.8	.8	.6	8			
9	.8	8.4	.7	7.7	2.2	1.6	2.3	.8	1.3	1.9	1.1	.9	9			
10	.8	8.2	.9	8.1	2.2	2.1	1.2	.6	1.2	1.2	.3	.9	10			
11	.6	6.7	2.3	8.3	3.8	1.9	1.3	.9	.2	.6	.4	.9	11			
12	.7	6.2	3.3	7.8	1.2	2.2	.7	1.1	1.9	1.7	.4	1.1	12			
13	.8	6.7	3.8	7.6	1.1	2.4	.6	.8	.3	.9	.3	1.2	13			
14	.6	2.1	6.7	6.8	.9	3.1	1.5	.4	.2	1.9	.4	1.3	14			
15	.6	2.2	4.8	8.9	.8	4.8	.2	.9	.2	2.3	.2	1.9	15			
16	.4	1.5	6.2	6.6	1.8	4.4	1.7	1.4	.2	.5	.4	.8	16			
17	.4	1.3	4.2	8.9	16.8	2.2	3.6	2.9	.2	.6	.7	.7	17			
18	4.5	2.5	8.8	8.1	28.5	2.1	.9	2.9	.2	.5	.7	.7	18			
19	8.7	1.4	5.1	1.6	2.6	1.6	.7	3.5	.2	.5	.8	.5	19			
20	9.5	1.3	3.9	1.5	3.1	1.9	4.5	1.3	.2	.4	.2	.5	20			
21	7.8	1.8	4.2	1.6	1.3	2.1	2.4	1.2	.2	1.8	.2	.5	21			
22	10.2	1.7	4.9	2.9	28.1	9.9	.8	.9	.2	.8	.2	.5	22			
23	8.1	1.5	4.9	4.6	.9	.9	.7	.7	.2	.4	.2	.4	23			
24	6.4	1.3	6.4	1.5	2.8	1.2	1.2	1.4	.2	.4	.3	.6	24			
25	7.6	1.3	3.7	1.8	1.8	.8	.8	1.9	.2	.6	.4	.6	25			
26	8.4	1.7	3.6	1.7	1.6	.8	.9	.9	1.3	.5	.7	.7	26			
27	8.9	1.9	4.9	1.9	1.3	.9	1.8	.8	.2	.3	.8	1.9	27			
28	9.4	1.9	4.1	1.5	1.2	1.9	.4	1.8	.2	.2	.8	1.2	28			
29	7.9	2.4	3.5	1.9	1.4	.9	1.1	.2	.3	.3	.6	.9	29			
30	8.6	1.2	4.6	1.3	1.3	1.8	1.8	.3	.3	.3	.3	1.9	30			
31	7.9	1.4		1.3		1.2	.7		.4		.4		31			
MEAN	3.6	4.1	3.1	4.9	3.9	2.3	7.1	1.1	1.1	1.8	.5	.8	MEAN			
MAX.	10.2	9.3	5.1	8.3	28.1	13.5	82.6	3.5	8.3	6.9	2.9	1.9	MAX.			
MIN.	.4	1.2	.7	1.3	.8	.5	.6	.4	.2	.2	.2	.2	MIN.			
ACFT	231.4	252.8	183.5	186.1	232.5	138.9	636.5	68.6	68.5	57.3	31.9	45.6	ACFT			

WATERMASTER YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-Feet
2.81	389.34	2.33	1	7	1828	.17	.87	3	6	8888	2858.80

STATION: EASTON CREEK NEAR PASADENA													STATION NO. 75369		WATERMASTER YEAR 1973-74	
MEAN DAILY DISCHARGE in second-foot													75369		1973-74	
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY			
1	.A	8.1	.7	.6	.7	2.3	.7	4.4	2.4	4.4	4.2	5.8	1			
2	.A	1.3	.7	.6	.7	1.7	.2	4.2	3.1	4.7	4.2	10.6	2			
3	.A	1.3	.8	.6	.8	1.3	.4	4.6	2.7	4.9	6.2	10.6	3			
4	.7	1.1	.8	.6	.8	1.1	4.6	4.9	3.0	4.5	4.4	10.7	4			
5	.9	1.1	.9	.6	.8	1.8	3.4	4.8	.1	4.5	4.4	10.7	5			
6	1.4	1.8	.8	.6	.9	.9	14.4	4.4	.8	4.6	4.6	11.0	6			
7	6.5	1.8	.7	.6	.9	.8	46.5	3.9	3.4	5.9	4.2	10.9	7			
8	25.2	1.8	.7	.6	.9	.6	29.7	3.6	1.8	3.4	4.8	11.2	8			
9	27.9	1.8	.7	.6	1.8	.5	23.1	5.5	.8	3.8	4.1	11.0	9			
10	15.1	1.8	.7	.7	.9	.5	14.4	8.8	.8	4.3	4.2	10.2	10			
11	15.2	.9	.7	.8	.9	.6	15.4	8.6	.8	5.1	4.2	10.2	11			
12	15.3	.9	.7	.8	.8	.6	15.4	6.4	.8	4.8	3.9	10.0	12			
13	15.3	.9	.7	.7	.8	.6	16.4	3.1	.8	3.9	3.9	9.8	13			
14	15.6	.9	.7	.6	.6	.6	16.2	3.8	.8	4.6	4.9	3.7	14			
15	16.2	.9	.7	.7	.6	.5	15.7	2.8	.1	4.1	4.8	1.7	15			
16	16.2	.9	.8	.7	.9	.6	15.5	2.7	1.8	3.1	4.8	1.6	16			
17	16.2	.9	.8	.7	.7	.8	17.1	8.8	1.8	3.7	4.1	1.5	17			
18	16.2	.9	.8	.6	12.9	.9	16.2	2.7	.1	1.2	3.4	1.5	18			
19	16.2	.9	.8	.6	2.3	1.8	15.3	2.7	3.4	4.2	3.6	1.6	19			
20	16.8	.8	.8	.7	1.6	1.1	17.8	2.6	3.7	4.6	3.5	1.9	20			
21	16.2	.8	.8	.7	1.3	1.1	14.9	2.5	3.1	4.6	3.4	1.6	21			
22	16.7	.A	.8	.7	1.1	1.1	8.8	2.5	1.4	4.6	3.2	1.6	22			
23	16.7	.8	.7	.8	1.2	.8	7.4	2.3	.8	3.9	3.1	1.6	23			
24	16.2	.7	.8	.9	1.1	.3	9.6	2.2	.8	4.3	3.8	1.6	24			
25	16.8	.7	.7	.8	1.8	.2	5.8	2.3	4.1	3.2	3.1	1.6	25			
26	14.9	.8	.6	.8	.9	.7	4.5	2.3	4.2	3.6	3.1	1.6	26			
27	16.8	.9	.6	.8	.9	.2	3.4	2.3	2.9	3.9	2.9	1.6	27			
28	16.8	.8	.6	.7	.8	.2	3.5	2.4	3.4	3.1	2.7	1.6	28			
29	16.8	1.8	.6	.7	.7	.2	3.3		3.2	1.7	2.7	1.6	29			
30	16.8	.7	.6	.6	.7	.2	3.1		.8	4.2	2.5	1.6	30			
31	16.4	.7		.6		.2	3.4		4.2		2.5		31			
MEAN	13.5	1.1	.7	.7	1.4	.7	11.9	3.4	1.4	4.8	3.7	5.4	MEAN			
MAX.	27.9	8.1	.9	.9	12.9	2.3	46.5	8.9	4.1	5.9	4.6	11.2	MAX.			
MIN.	.7	.7	.6	.6	.7	.2	.2	2.2	.8	1.2	2.5	1.5	MIN.			
ACFT	829.2	69.9	43.3	42.2	84.5	45.8	729.2	208.9	184.6	238.5	225.4	321.4	ACFT			

WATERMASTER YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-Feet
4.06	128.34	1.88	1	7	2809	0	0	7	5	1444	2944.40

APPENDIX A (continued)

STATION: EATON WASH			MEAN DAILY DISCHARGE in second-feet										STATION NO. 75300		WATERMASTER YEAR 1973-74	
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY			
1	.2	.6	.1	.1	.1	.1	7.9	.3	.3	4.2	.3	.1	1			
2	.5	.5	.2	.3	.1	.1	.2	.1	15.7	20.7	.2	.1	2			
3	.5	.4	.1	.2	.1	.2	.3	.1	13.6	.1	.3	.1	3			
4	.5	.5	.1	.3	.1	.3	64.6	.1	.1	.1	.2	.1	4			
5	1.0	.4	.1	.1	.2	.3	17.5	.1	.1	.1	29.1	.1	5			
6	1.9	.3	.1	.1	.2	.3	54.6	.2	.1	.1	.1	.1	6			
7	1.7	.3	.1	.1	.2	.3	49.6	.1	94.3	.1	.3	.2	7			
8	1.5	.4	.1	.1	.2	.3	22.0	.2	40.2	.1	.2	.0	8			
9	1.3	.3	.0	.1	.2	.3	9.0	.0	.1	.1	.3	.1	9			
10	1.4	.3	.1	.1	.1	.3	3.8	.0	.1	.1	.2	.1	10			
11	1.2	.3	.1	.0	.1	.4	2.5	.1	.1	.1	.1	.1	11			
12	1.8	.3	.1	.1	.1	.5	1.7	.0	.0	.1	.1	.1	12			
13	2.6	.2	.1	.0	.1	.5	1.5	.0	.0	.1	.2	.1	13			
14	1.9	.4	.1	.0	.1	.9	2.6	.1	.0	.1	.2	.1	14			
15	1.5	.4	.1	.1	.0	.5	4.9	.1	.0	.1	1.5	.1	15			
16	1.1	.3	.1	.2	.3	.5	11.7	.0	.1	.1	.1	.0	16			
17	.9	.3	.1	.2	15.0	.3	26.7	.0	.1	.1	.1	.1	17			
18	.8	.2	.3	.1	11.2	.5	3.4	.0	.1	.1	.1	.2	18			
19	.7	.2	.3	.1	.1	.5	1.4	.1	.1	2.8	.1	.1	19			
20	1.0	.5	.3	.1	.1	.4	20.4	.2	.1	1.0	.1	.1	20			
21	1.1	.3	.5	.1	.1	.3	1.7	.0	.1	1.1	.1	.1	21			
22	.8	.2	.1	.1	17.9	.5	1.3	.0	.1	1.0	.1	.0	22			
23	.7	.2	.1	5.3	.4	.3	1.4	.1	.1	.9	.3	.0	23			
24	.7	.2	.1	.3	.1	.1	1.8	.1	.1	.7	.2	.1	24			
25	.6	.2	.1	.3	.1	.0	1.5	.4	.1	.5	.2	.1	25			
26	.6	.1	.1	.3	.1	.0	1.0	5.1	.1	.4	.2	.1	26			
27	.6	.2	.1	.2	.1	.1	1.0	.4	14.6	.3	1.6	.1	27			
28	.6	.1	.3	.1	.1	.1	1.0	17.7	.0	.2	.3	.1	28			
29	.9	.1	.0	.2	.1	.1	1.2	.1	.1	.3	.3	.1	29			
30	1.0	.3	.0	.2	.1	.1	1.1	.1	.1	.3	.2	.1	30			
31	.9	.2		.1		.1	1.3		.1		.2		31			
MEAN	1.1	.3	.1	.3	1.6	.4	10.3	.9	5.9	1.2	1.2	.1	MEAN			
MAX.	2.6	.6	.5	5.3	17.9	5.4	64.6	17.7	94.3	20.7	29.1	.2	MAX.			
MIN.	.2	.1	.0	.0	.0	.0	.2	.0	.0	.1	.1	.0	MIN.			
ACFT	64.7	18.4	7.3	19.1	94.3	27.2	636.0	50.8	361.9	70.8	73.7	5.0	ACFT			

WATERMASTER YEAR SUMMARY

MEAN
DISCHARGE 1.95

MAXIMUM				
DISCHARGE	GAGE HT	MO	DAY	TIME
351.81	1.35	NOV	27	0600

MINIMUM				
DISCHARGE	GAGE HT	MO	DAY	TIME
0	.01	MAR	2	2400

TOTAL
ACRE-FEET 1429.20

STATION: FLINT WASH				MEAN DAILY DISCHARGE in second-feet								STATION NO. 62190		WATERMASTER YEAR 1973 - 74	
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY		
1	.2	.4	.4	.0	.2	20.0	9.2	.6	1.0	10.0	.3	.3	1		
2	.3	.4	.5	.0	.2	.8	1.2	.7	27.1	7.2	.6	.3	2		
3	.5	.5	.5	.1	.2	.6	1.0	.5	35.2	.8	.6	.3	3		
4	.2	.5	.5	.2	.3	.5	71.8	.9	1.1	1.7	.6	.1	4		
5	.3	.5	.5	.2	.2	.7	15.0	1.5	.8	.6	3.0	.3	5		
6	.2	.4	.4	.2	.2	.7	118.7	.7	1.2	.6	.3	.3	6		
7	.1	.3	.3	.2	.2	.7	251.4	.8	75.5	.5	.3	.3	7		
8	.2	.3	.3	.4	.2	.6	44.5	.5	74.8	.4	.2	.3	8		
9	.2	.3	.3	.1	.3	.6	7.3	.5	3.5	.3	.6	.3	9		
10	.3	.3	.3	.2	.3	.6	3.5	.7	2.4	.3	.3	.3	10		
11	.3	.4	.2	.2	.3	.7	2.7	.6	1.7	.5	.3	.3	11		
12	.4	.3	.1	.2	.3	.5	2.5	.5	1.5	.5	.3	.2	12		
13	.2	.6	.3	.2	.3	.7	2.2	.5	1.5	.5	.3	.3	13		
14	.2	.4	.3	.2	.4	1.1	2.0	.6	1.2	.5	.5	.2	14		
15	.3	.2	.5	.2	.3	.5	2.0	.9	1.2	.5	.7	.3	15		
16	.2	.2	.6	.2	.8	.4	11.7	.6	1.0	.5	.3	.3	16		
17	.2	.2	.6	.2	39.8	.5	47.8	.7	1.0	.5	.3	.3	17		
18	.1	.3	.8	.2	30.4	.4	10.3	.7	.9	.5	.4	.8	18		
19	.2	.3	.6	.2	.5	.4	4.1	.5	.8	.5	.3	.3	19		
20	.2	.3	.7	.2	.5	.4	25.0	.4	.8	.5	.3	.3	20		
21	.3	.4	.7	.2	.4	.4	5.4	.4	.8	.5	.3	.3	21		
22	.4	.3	.5	.2	29.5	3.9	4.7	.4	.9	.5	.3	.3	22		
23	.4	.3	.7	1.3	1.4	.9	4.7	.6	.9	.5	.2	.3	23		
24	.3	.3	.8	.5	.4	.9	4.5	1.1	.9	.5	.3	.3	24		
25	.4	.3	.8	.2	.4	.9	4.4	3.2	.9	.5	.3	.3	25		
26	.4	.3	.9	.2	.5	.9	4.4	3.0	1.4	.6	.3	.3	26		
27	.4	.3	.5	.2	.3	.9	4.2	.6	20.2	.5	.2	.1	27		
28	.4	.4	.3	.2	.3	.9	4.2	4.3	.6	.5	.2	.3	28		
29	.4	.4	.2	.2	.3	.9	4.0		.3	.5	.3	.3	29		
30	.4	.4	.0	.2	.3	.9	4.1		1.0	.5	.3	.3	30		
31	.4	.5		.2		.9	1.8		.5		.3		31		
MEAN	.3	.4	.5	.2	3.7	1.4	22.3	1.0	8.6	1.1	.4	.3	MEAN		
MAX.	.5	.6	.9	1.3	39.8	20.0	261.4	4.3	74.8	10.0	1.8	.8	MAX.		
MIN.	.1	.2	.0	.0	.2	.4	1.0	.4	.3	.3	.2	.2	MIN.		
ACFT	17.8	22.0	27.9	14.2	217.8	86.4	1369.0	54.1	526.8	63.3	26.5	18.3	ACFT		

WATERMASTER YEAR SUMMARY

MEAN
DISCHARGE 3.35

MAXIMUM				
DISCHARGE	GAGE HT	MO	DAY	TIME
767.57	4.25	MAY	7	2000

MINIMUM				
DISCHARGE	GAGE HT	MO	DAY	TIME
0	0	MAY	25	0924

TOTAL
ACRE-FEET 2444.10

APPENDIX A (continued)

STATION: RUBIO DRAIN		MEAN DAILY DISCHARGE in second-foot											STATION NO. 75220		WATERMASTER YEAR 1973-74	
		DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	1.5	1.3	3.4	3.0	1.7	24.4	13.4	.5	1.4	1.1	1.1	.8	1			
2	1.7	1.3	2.9	2.5	1.6	1.3	1.1	1.1	34.5	18.1	.9	.9	2			
3	1.7	1.6	3.1	3.0	1.7	1.2	1.0	1.0	24.4	1.1	1.1	.9	3			
4	1.7	1.6	2.8	3.2	1.6	1.0	136.7	1.0	1.4	1.1	1.0	.9	4			
5	1.8	1.7	2.6	4.1	1.7	.6	29.5	1.1	1.6	.9	15.1	.9	5			
6	2.0	1.7	3.1	2.9	1.7	.7	348.8	1.0	1.0	.9	13.3	.9	6			
7	1.7	1.6	3.4	1.8	1.7	.5	253.7	1.2	97.8	.9	1.8	1.0	7			
8	1.5	1.9	3.0	2.2	2.0	.9	.0	1.2	78.5	1.0	1.3	1.0	8			
9	1.9	3.0	2.9	2.0	1.7	.9	.6	1.1	1.4	.8	1.2	1.0	9			
10	1.6	3.4	3.1	2.1	1.8	1.2	.8	1.2	1.2	.9	1.4	1.0	10			
11	1.9	4.4	4.1	1.7	1.7	1.1	.0	1.1	1.3	.9	1.3	1.1	11			
12	1.3	4.2	4.0	1.8	1.8	1.2	.8	1.0	1.1	.9	1.1	1.1	12			
13	1.3	2.5	3.9	1.6	2.3	1.1	.0	1.1	1.0	1.0	1.3	1.2	13			
14	1.4	1.9	3.1	1.4	1.9	1.4	.0	1.1	1.2	1.1	1.3	1.2	14			
15	1.3	2.4	5.1	1.7	1.5	1.3	.0	1.2	1.1	.9	2.6	1.2	15			
16	1.2	2.2	2.5	1.7	1.6	1.0	.0	1.1	1.1	.7	1.2	1.0	16			
17	1.2	2.1	4.5	1.7	39.4	1.0	.0	.9	1.0	.9	1.4	1.1	17			
18	1.3	2.2	2.1	1.7	58.4	1.0	.0	.8	1.7	1.0	1.1	1.1	18			
19	1.3	2.0	2.4	2.0	1.2	1.0	.0	1.0	1.1	.9	1.4	1.1	19			
20	1.2	2.8	2.3	1.8	1.1	.9	.0	1.2	1.0	.9	1.4	1.0	20			
21	1.4	3.7	2.6	1.9	1.1	.9	.0	1.1	.9	.8	.9	1.1	21			
22	1.3	3.6	2.4	2.5	36.4	18.4	.0	1.2	1.0	.8	1.0	1.1	22			
23	1.3	3.8	1.9	14.6	4.0	.5	.0	1.3	.9	.8	1.0	1.1	23			
24	1.4	3.0	2.7	1.4	1.1	.6	.0	1.2	1.0	1.0	.9	1.0	24			
25	1.3	3.7	2.1	1.7	1.1	.5	.0	1.3	1.0	1.0	.9	1.3	25			
26	1.4	3.2	2.5	1.6	1.1	.7	.0	.9	1.2	.9	1.0	1.1	26			
27	1.2	2.9	3.0	1.7	1.8	.9	.0	1.1	23.3	1.1	1.1	1.0	27			
28	1.2	2.8	2.4	1.6	.9	1.0	.0	7.5	1.0	1.0	1.1	1.1	28			
29	1.1	2.6	3.3	1.6	.7	.9	.0	.9	1.2	1.0	1.1	1.2	29			
30	1.2	2.9	2.1	1.6	.6	1.1	.0	.8	1.4	.9	1.0	1.0	30			
31	1.2	2.7		1.4		.9	.0		1.1		.9		31			
MEAN	1.4	2.7	3.0	2.5	5.9	2.2	25.2	1.3	9.1	1.5	2.0	1.0	MEAN			
MAX.	2.8	4.4	5.1	14.6	58.4	24.4	348.5	7.5	97.8	18.1	14.1	1.3	MAX.			
MIN.	1.1	1.3	1.9	1.4	1.7	.5	.0	.4	.9	.7	.9	.8	MIN.			
ACFT	48.4	163.4	177.1	153.5	354.4	130.4	1552.2	72.7	561.6	85.8	124.3	61.3	ACFT			

WATERMASTER YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-FEET
4.82	861.71	2.05	3	27	0825	0	0	1	7	2300	3531.30

STATION: 0000 GRAM		MEAN DAILY DISCHARGE in second-foot											STATION NO. 52158		WATERMASTER YEAR 1973-74	
		DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY	
1	.3	.4	.2	.0	.7	7.2	5.9	.7	.7	3.1	.1	.0	1			
2	.3	.6	.1	.0	.7	.1	.3	.7	10.9	4.0	.1	.0	2			
3	.3	.8	.1	.3	.8	.1	1.6	.7	10.8	.2	.2	.1	3			
4	.3	.8	.0	.0	.8	.2	36.4	.8	.0	.1	.3	.1	4			
5	.1	.8	.0	.7	.5	.1	7.1	.8	.2	.1	1.3	.1	5			
6	.3	.6	.8	.7	.4	.1	41.2	.8	.1	.1	.4	.2	6			
7	.3	.6	.1	.6	.3	.2	67.8	.5	31.9	.0	.3	.3	7			
8	.3	.6	.2	.7	.3	.1	5.8	.5	17.5	.0	.1	.3	8			
9	.3	.9	.2	.0	.2	.1	.6	.4	.7	.0	.1	.3	9			
10	.3	.8	.1	.7	.1	.0	.3	.4	.7	.4	.1	.3	10			
11	.3	.8	.1	.0	.0	.0	.6	.5	.7	.6	.1	.3	11			
12	.3	.5	.1	.0	.0	.8	.0	.6	.0	.5	.1	.3	12			
13	.3	.5	.0	.0	.0	.0	.8	.6	.3	.6	.1	.3	13			
14	.3	.4	.0	.5	.1	.1	.1	.8	.3	.4	.1	.3	14			
15	.1	.4	.0	.8	.1	.1	.2	.8	.4	.6	.0	.3	15			
16	.1	.4	.0	.5	1.8	.0	2.2	.8	.5	.4	.0	.1	16			
17	.1	.3	.0	.8	13.8	.0	4.7	.9	.7	.4	.0	.3	17			
18	.1	.3	.0	.8	18.7	.2	.4	.7	.6	.4	.0	.1	18			
19	.1	.3	.0	.7	.0	.2	.4	.7	.5	.3	.0	.1	19			
20	.2	.3	.1	.4	NO FLOW	.8	8.6	.9	.5	.2	.0	.1	20			
21	.1	.3	.2	.8	NO FLOW	.2	.3	.8	.5	.1	.0	.2	21			
22	.0	.3	.1	.8	7.8	6.3	.2	.8	.6	.1	.0	.2	22			
23	.0	.3	.1	3.3	.0	.3	.1	.4	.5	.2	.0	.1	23			
24	.0	.3	.0	1.5	NO FLOW	.3	.1	.4	.5	.3	.0	.0	24			
25	.0	.3	.0	1.0	NO FLOW	.3	.2	.5	.4	.2	.0	.0	25			
26	.9	.5	.0	1.0	NO FLOW	.3	.3	.7	1.1	.2	.0	.0	26			
27	.8	.3	.0	.0	NO FLOW	.3	.3	.4	11.1	.1	.0	.0	27			
28	.8	.3	.0	.6	.1	.3	.3	2.8	.5	.1	.0	.1	28			
29	.0	.3	.0	.8	NO FLOW	.3	.3	.9	.4	.1	.0	.1	29			
30	.8	.3	.0	.8	.1	.3	.4	.4	.4	.1	.0	.1	30			
31	.1	.3		.6		.3	.6		.4		.0		31			
MEAN	.2	.4	.1	.7	1.2	.8	5.9	.7	3.1	.5	.1	.0	MEAN			
MAX.	.3	.6	.2	3.3	13.6	7.2	67.8	2.8	31.9	5.0	1.3	.3	MAX.			
MIN.	0	.3	0	0	0	0	0	.4	0	0	0	0	MIN.			
ACFT	9.9	24.9	3.7	43.6	73.5	26.0	364.2	38.4	188.4	30.6	7.2	9.0	ACFT			

WATERMASTER YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
DISCHARGE	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	ACRE-FEET
1.34	242.88	1.57	3	27	8324	0	0	7	18	2400	838.48

APPENDIX A (continued)

STATION: WEST ALTADENA				MEAN DAILY DISCHARGE in acre-feet										STATION NO. 6255		WATERMASTER YEAR 1973-74	
DAY	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	DAY				
1	.2	.3	1.3	.0	.2	3.2	2.4	.4	.7	3.5	.2	.3	1				
2	.2	.4	1.3	.1	.2	.2	.7	.3	5.3	1.8	.2	.1	2				
3	.2	.4	.6	.0	.5	.2	.7	.3	6.6	.7	.2	.0	3				
4	.2	.5	.3	.0	.5	.2	16.3	.5	.7	.7	.2	.2	4				
5	.2	.4	.5	.0	.4	.2	3.1	.4	.5	.4	4.9	.3	5				
6	.3	.4	.4	.1	.2	.2	21.5	.5	.5	.8	.2	.2	6				
7	.3	.4	.2	.1	.2	.2	29.6	.5	22.7	.7	.2	.3	7				
8	.3	.9	.2	.4	.2	.3	3.5	.9	18.3	.6	.2	.3	8				
9	.3	.4	.2	.2	.3	.2	.9	.4	.7	.6	.2	.2	9				
10	.3	.5	.2	.5	.2	.2	.6	.4	.7	.5	.2	.2	10				
11	.3	.5	.2	.4	.2	.2	.7	.4	.7	.2	.2	.1	11				
12	.3	.4	.2	.2	.3	.2	.5	.3	.7	.1	.2	.2	12				
13	.3	.5	.2	.2	.3	.4	.6	.3	.7	.2	.2	.2	13				
14	.3	.4	.2	.2	.2	.5	.4	.4	.6	.1	.2	.2	14				
15	.3	.5	.0	.2	.2	.5	.3	.5	.7	.4	.9	.2	15				
16	.3	.4	.0	.2	.7	.5	.9	.3	.9	.2	.2	.2	16				
17	.3	.4	.0	.2	12.2	.5	2.4	.3	.7	.0	.4	.2	17				
18	.3	.4	.0	.5	4.6	.4	1.6	.3	.7	.0	.2	.2	18				
19	.3	.4	.1	.2	.3	.4	1.8	.3	.7	.0	.2	.2	19				
20	.3	.4	.0	.1	.5	.3	4.6	.4	.8	.0	.2	.2	20				
21	.3	.8	.0	.1	.8	.3	.4	.3	.7	.0	.2	.2	21				
22	.3	.5	.0	.3	6.1	2.0	.3	.3	.9	.0	.2	.3	22				
23	.3	.5	.1	1.1	.4	.3	.3	.3	.8	.1	.2	.2	23				
24	.3	.4	.2	.4	.3	.3	.3	.4	.7	.2	.2	.3	24				
25	.3	.4	.0	.4	.2	.3	.8	.3	.6	.2	.2	.4	25				
26	.3	.4	.1	.3	.3	.4	.4	.4	1.4	.3	.2	.3	26				
27	.3	.4	.3	.4	.2	.4	1.2	.4	8.8	.2	.2	.2	27				
28	.3	.5	.2	.4	.2	.3	.9	1.2	.8	.2	.3	.2	28				
29	.3	.5	.1	.4	.2	.3	.3	.3	.8	.3	.2	.3	29				
30	.3	.5	.1	.2	.2	.3	.3	.3	1.1	.3	.2	.3	30				
31	.3	.5		.1		.6	.3		.6		.2		31				
MEAN	.3	.5	.2	.3	1.0	.5	3.2	.4	2.3	.4	.4	.2	MEAN				
MAX.	.3	.9	1.3	1.1	12.2	3.2	29.6	1.2	22.7	3.5	4.9	.4	MAX.				
MIN.	.2	.3	.0	.0	.2	.2	.3	.3	.5	.0	.2	.0	MIN.				
ACFT	18.0	28.5	14.1	15.4	61.8	28.4	195.1	23.0	144.3	25.7	22.4	13.2	ACFT				

WATERMASTER YEAR SUMMARY

MEAN	MAXIMUM					MINIMUM					TOTAL
	DISCHARGE	GAGE HT	MO	DAY	TIME	DISCHARGE	GAGE HT	MO	DAY	TIME	
DISCHARGE	203.68	2.03	3	27	0200	0	0	9	14	2400	ACRE-FFET
0.81											589.50

APPENDIX B

**GROUND WATER EXTRACTION DATA
FOR INDIVIDUAL WELLS**

APPENDIX B: GROUND WATER EXTRACTION DATA FOR

INDIVIDUAL WELLS - In acre-feet

STATE WELL NUMBER	OWNER'S DESIG- NATION	PRODUCTION												TOTAL
		1973						1974						
		JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	
WESTERN UNIT (MONK HILL BASIN)														
LA CANADA IRRIGATION DISTRICT														
1N/13W-01J015	RAYM6	25.27	32.10	15.1A	30.58	18.81	10.00	.93	5.27	0	7.73	12.35	.07	158.29
LA5 FLORES WATER COMPANY														
1N/12W-0AM025	2	35.18	25.75	9.55	15.02	22.52	15.77	1A.16	27.36	15.61	23.60	18.40	33.97	258.89
LINCOLN AVENUE WATER COMPANY														
1N/12W-05P015	3	76.23	76.21	99.21	73.88	15.00	0	0	0	0	0	0	0	340.53
1N/12W-05P025	2	1.39	8.53	4.20	4.44	4.63	3.1A	0	0	0	.3A	3.64	18.23	48.62
1N/12W-050025	5	86.26	86.5A	29.3A	0	25.0A	49.5A	A.99	A.73	3.22	3.73	16.43	13.66	331.60
TOTALS		163.88	171.30	132.77	78.32	44.71	52.76	A.99	A.73	3.22	4.11	20.07	31.89	720.75
PASADENA CEMETERY ASSOCIATION														
1N/12W-05G015	4	4.97	1.74	6.77	.48	.16	.37	.88	.37	.31	1.24	1.77	3.0A	22.14
1N/12W-09E015	2-3	8.82	10.67	9.32	6.11	2.42	0	0	.52	0	5.49	7.20	10.52	61.07
TOTALS		13.79	12.41	16.09	6.59	2.58	.37	.88	.89	.31	6.73	8.97	13.60	83.21
PASADENA CITY OF														
1N/12W-05M015	ARROY	284.61	287.10	269.7A	284.21	279.18	249.02	270.40	255.25	208.64	292.22	290.03	265.55	3236.07
1N/12W-05N015	VENTU	227.47	137.38	20.32	9.61	0	9.77	22.45	112.30	123.72	26.12	247.42	249.47	1186.03
1N/12W-080025	WINDSP	19.51	41.31	39.14	0	1.11	20.08	24.24	51.25	53.73	119.32	75.79	85.81	531.27
TOTALS		531.59	465.79	329.24	293.82	280.29	278.85	317.17	418.80	386.09	417.6A	613.24	600.83	4953.37
RUBIO CANYON LAND AND WATER ASSN														
1N/12W-08M015	5	172.76	47.05	46.82	22.91	.47	0	.19	19.75	37.96	71.85	155.76	175.86	751.38
1N/12W-0AM035	4	0	1.25	28.9A	A7.13	45.34	26.45	41.26	49.31	6.94	32.47	4.39	29.13	353.03
1N/12W-09K015	6	21.79	20.81	16.76	15.34	12.05	9.41	A.86	11.05	9.33	13.86	15.17	20.33	174.76
1N/12W-09P015	2	0	0	0	0	0	.96	.20	0	0	0	0	0	1.16
TOTALS		194.55	69.11	92.54	125.38	57.86	37.22	50.51	80.11	54.23	11A.18	175.32	225.32	1280.33
VALLBY WATER COMPANY														
1N/12W-06M045	2	19.86	21.31	25.99	17.70	26.32	31.89	3.60	34.36	1.60	7.45	37.4A	51.51	278.37
1N/12W-06M065	1	11.77	27.19	2A.21	22.71	30.84	32.5A	35.79	21.81	6.68	21.70	12.03	15.54	297.10
1N/12W-06M095	4	19.16	35.54	33.09	27.71	33.51	26.67	35.00	20.47	15.53	31.02	37.47	82.26	377.43
TOTALS		50.59	84.04	85.29	68.12	90.67	91.14	74.39	76.64	24.01	42.17	94.03	152.31	953.40
SUBTOTALS (MONK HILL BASIN)		1014.85	860.50	680.66	617.83	517.44	486.11	469.03	617.80	483.47	6A0.1A	942.3A	1057.99	8408.24
(PASADENA SUBAREA)														
ALHAMBRA CITY OF														
1N/12W-34F015	2	0	39.12	81.95	82.35	78.25	87.18	94.8A	A2.86	A9.44	A2.89	A4.43	81.47	884.80
1N/12W-34F045	6	27.15	15.96	17.56	16.74	15.9A	1.48	0	2.00	13.62	42.37	2A.67	8.71	190.64
TOTALS		27.15	55.08	99.51	99.09	94.23	89.04	94.88	84.86	103.06	125.26	113.10	90.18	1075.44
ARCADIA CITY OF														
1N/11W-29M015	RCM8A	0	0	0	0	0	0	0	0	0	.0A	0	0	.08
1N/11W-30P015	RCM8B	46.19	0	0	0	0	0	0	0	0	.0A	0	0	46.25
1N/11W-30P035	MPE10	88.25	178.58	173.55	137.10	0	0	0	12.90	106.75	147.58	159.00	168.96	1167.67
TOTALS		134.44	178.58	173.55	137.10	0	0	0	12.90	106.75	147.72	159.00	168.96	1214.00
CALIFORNIA-AMERICAN WATER CO														
1N/12W-25E015	19218	94.07	57.74	46.11	52.61	44.50	42.04	A.69	1A.67	17.33	41.39	42.65	56.34	520.34
1N/12W-26A015	1928	74.30	9.80	9.33	17.55	8.45	44.14	.22	.13	1.50	19.3A	12.87	37.12	234.77
1N/12W-26R015	1924	92.90	104.71	71.89	57.36	7.75	9.42	4.01	25.25	7.22A	50.95	48.9A	82.05	562.49
1N/12W-34C015	1923	16.94	27.50	9.5A	16.31	12.57	12.16	.07	2.53	.07	10.76	33.53	38.99	201.01
1N/12W-34E025	19214	32.06	27.59	9.7A	10.52	1.43	.28	.02	.29	0	10.06	8.03	28.19	128.23
1N/12W-35R015	1917	102.51	114.85	100.62	72.41	6.50	8.90	7.49	25.59	58.81	92.76	66.71	67.69	724.84
TOTALS		412.78	342.21	247.29	226.78	81.20	116.94	20.50	70.46	84.93	245.28	212.95	310.38	2371.68
CANYON MUTUAL WATER COMPANY														
1N/12W-13K015	WILCX	.06	0	0	0	1.95	0	0	1.71	0	.24	.03	.98	4.97
FAST PASADENA WATER COMPANY														
1N/11W-30J015	7	43.30	11.67	24.54	28.31	2.74	.59	5.98	32.30	.13	13.77	7.29	27.24	217.86
1N/11W-30K015	8	51.38	29.76	19.65	17.17	9.99	10.26	.34	22.02	2.15	17.54	23.34	16.70	220.30
1N/11W-300035	1	2.93	14.79	11.26	1.87	.01	.13	1.58	23.20	2.62	2.56	10.59	25.30	96.84
TOTALS		97.61	76.22	55.45	47.35	12.74	10.98	7.90	77.52	4.90	13.87	41.22	69.24	535.00

APPENDIX B: (continued)

STATE WELL NUMBR	OWNERS DESIG- NATION	1973												TOTAL
		JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	
M E HUNTINGTON LIBRARY AND ART GALL														
1N/12W-34H015	CANYN	2.73	2.72	4.08	.45*	9.09*	5.90*	3.18	11.12	2.53	10.85	19.58	2.45	74.68
1N/12W-35C015	ORLDO	43.12	41.63	33.08	29.09	2.85	0	0	0	2.71	8.99	22.28	46.27	230.02
TOTALS		45.85	44.35	37.16	29.54	11.94	5.90	3.18	11.12	5.24	19.84	41.86	48.72	304.70
KJNNFLO4 IRRIGATION DISTRICT														
1N/12W-13F035	3	18.06	22.05	13.26	13.68	8.16	3.68	2.54	1.36	.16	2.63	6.13	16.70	108.33
1N/12W-13L015	WGNPR	.04	.05	.04	.01	.02	.06	.02	.04	.01	.21	.03	.05	.58
TOTALS		18.10	22.10	13.30	13.69	8.18	3.66	2.56	1.40	.17	2.84	6.16	16.75	108.91
MT94 LOMA MUTUAL WATER COMPANY														
1N/11W-07N015	GLEN	5.68	4.15	2.30	3.53	.86	0	1.73	5.85	3.66	2.47	.78	1.67	32.38
1N/11W-07N025	BROWN	6.37	6.83	4.38	2.74	.15	0	0	.36	0	2.07	2.44	6.12	32.28
TOTALS		12.05	10.98	6.68	6.27	1.01	0	1.73	6.21	3.66	4.74	2.74	7.79	64.66
MONROVIA CITY OF														
1N/11W-30H015	CHAP6	106.20	113.00	113.15	107.54	113.24	116.40	7.87	2.96	0	11.99	94.72	107.94	894.91
OSBORN COMPANY														
1N/12W-13H015	FARPT	3.80*	2.50	1.50	2.43	1.04	1.00	.40	.65	0	0	0	0	12.52
PASADENA CITY OF														
1N/11W-30D045	NCHAP	105.19	228.35	229.26	230.66	116.83	0	0	0	0	0	0	0	910.29
1N/12W-20A015	SUNST	23.90	74.92	180.43	197.96	90.26	160.44	59.14	78.18	0	117.74	152.54	182.28	1317.80
1N/12W-20H015	COPO3	17.01	0	31.75	163.53	110.07	119.07	238.37	150.82	0	141.51	173.07	117.98	1263.18
1N/12W-21K015	GARFD	59.98	77.93	60.64	164.82	79.19	149.54	24.49	143.48	90.26	143.29	74.62	26.96	1095.00
1N/12W-21K025	VILLA	0	0	0	75.85	231.52	181.91	68.89	202.03	348.32	305.10	309.99	230.21	1953.82
1N/12W-23G015	CPAIG	74.57	86.25	51.12	156.08	47.86	29.79	0	50.34	20.92	147.37	105.24	55.82	864.36
1N/12W-25H015	JORDAN	10.76	0	0	0	0	0	0	0	0	237.76	262.10	0	510.62
1N/12W-26C015	WORYY	134.43	83.98	33.96	141.54	62.53	4.30	0	0	0	144.54	78.35	128.26	793.89
TOTALS		425.84	551.43	587.16	1130.24	718.06	645.06	390.89	674.85	459.50	1279.31	1155.91	740.71	8708.96
ROYAL LAUNDRY AND DRY CLEANING CO														
1N/12W-28H015	SWELL	12.14	13.51	11.63	13.80	13.07	12.04	1.34	24.82	12.80	12.95	13.42	11.96	153.48
SAN GABRIEL COUNTY WATER DISTRICT														
1N/12W-36E025	VH003	73.74	59.78	73.03	67.19	65.25	74.20	63.68	73.89	84.45	83.32	125.30	119.50	943.33
SUNNY SLOPE WATER COMPANY														
1N/12W-36A015	6	139.21	153.10	90.98	79.03	130.39	215.15	187.01	282.69	210.65	35.81	142.14	126.82	1712.98
1N/12W-36H015	1	86.73	84.20	47.07	51.52	30.20	0	1.02	0	0	0	6.91	0	309.65
TOTALS		227.94	237.30	138.05	130.55	160.59	215.15	188.03	282.69	210.65	35.81	149.05	126.82	2022.63
SUBTOTALS		1596.90		1557.46		1283.30		782.96		1056.11		2115.46		
(PASADENA SUBAREA)			1707.04		2011.55		1290.37		1196.04		1998.07		1819.93	18415.19
TOTALS		2611.75		2238.12		1800.74		1251.99		1539.58		3057.84		
(WESTERN UNIT)			2567.54		2629.38		1776.48		1813.84		2658.25		2877.92	26,823.43
EASTERN UNIT (SANTA ANITA SUBAREA)														
ARCANIA CITY OF														
1N/11W-21G025	OG01A	224.72	224.11	209.13	193.39	0	0	0	0	0	144.93	247.03	230.59	1473.90
1N/11W-21G055	OG005	0	0	0	0	0	0	0	0	0	70.85	6.43	7.65	34.93
1N/11W-21H025	OG02A	208.38	287.85	192.37	168.29	0	0	0	0	0	108.79	203.73	210.77	1283.30
1N/11W-21H035	OG008	49.76	6.47	6.79	0	0	0	0	0	0	43.80	119.71	126.23	372.69
TOTALS		474.78	437.56	408.29	353.68	0	0	0	0	0	334.37	576.96	575.24	3164.82
SIERRA MADRE CITY OF														
1N/11W-21C025	4	43.85	0	0	11.48	0	0	0	0	0	79.61	74.26	0	208.40
1N/11W-21C035	3	63.75	125.82	115.82	117.39	35.39	78.22	30.51	0	0	27.66	0	79.14	667.50
1N/11W-21C065	5	0	127.54	41.80	68.44	1.75	2.67	0	49.12	40.39	70.70	31.12	147.95	571.48
1N/11W-21C075	6	157.24	8.87	31.82	6.57	74.48	0	0	19.44	0	33.20	41.08	0.63	381.33
TOTALS		264.04	262.03	189.44	203.88	111.62	78.89	34.51	88.56	50.39	147.17	146.44	235.72	1828.71
TOTALS		738.82		597.73		111.62		34.51		50.39		723.34		
(EASTERN UNIT)			699.50		557.56		78.89		88.56		548.54		810.96	4993.53
GRAND TOTALS		3350.57		2835.85		1912.36		1282.50		1589.97		3781.20		
			3267.13		3186.94		1855.37		1902.40		3163.79		3688.88	31,816.96

* ESTIMATED

APPENDIX C

WATER RIGHT LEASES

AND

PROGRAM FOR SPREADING CREDIT
CERTIFICATION BY LACFCD

RESOLUTION NO. R74-69

A RESOLUTION OF THE ALHAMBRA CITY COUNCIL
ACCEPTING THE BID OF THE CITY OF PASADENA
FOR PURCHASE OF 100 ACRE FEET OF 1973-74
RAYMOND BASIN WATER

WHEREAS, the City of Alhambra was accorded an
additional 260 acre feet of pumping water rights in the Pasadena
subarea of the Raymond Basin as of January, 1974, allowing six
months for extraction from said basin or lose the right as of
June 30, 1974; and

WHEREAS, the City of Alhambra's pumping capacity
would allow the extraction of 160 acre feet by June with the
possibility of losing 100 acre feet of pumping rights; and

WHEREAS, on April 3, 1974, the Water Division of the
Department of Public Works mailed informal proposals to pumpers
within said Raymond Basin offering 100 feet of pumping rights
for sale to be extracted by June 30, 1974; and

WHEREAS, the City of Alhambra received one offer
from the City of Pasadena for such 100 acre feet of pumping
rights, the acceptance of which has been recommended to the
Alhambra City Council by the City Manager and the Director of
Public Works;

NOW, THEREFORE, BE IT RESOLVED by the Alhambra City
Council that this Council hereby accepts said offer from the
City of Pasadena in the amount of \$3,500.00 for the purchase by
said City of Pasadena of 100 acre feet of water pumping rights
in the Raymond Basin, which water is to be extracted by no later
than June 30, 1974, and this Council hereby authorizes the City
Manager and the Director of Public Works to complete said
transaction for and on behalf of the City of Alhambra.

Signed and approved this 16th day of April,
1974.

ATTEST:

DOROTHY MC KUSICK
City Clerk

I HEREBY CERTIFY that the above and foregoing resolution
was duly passed and adopted by the Alhambra City Council at its
regular meeting held on the 16th day of April, 1974, by the
following vote, to wit:

AYES: COUNCILMEN QUINN, WEYER, TOWNSEND, ZERMAN, BURKE
NOES: NONE
ABSENT: NONE

DOROTHY MC KUSICK
City Clerk

THIS LEASE, by and between the CANYON MUTUAL WATER COMPANY, hereinafter referred to as "Water Company", and the CITY OF PASADENA, a municipal corporation, hereinafter referred to as "City", is made and based upon the following facts:

Both parties to this agreement own adjudicated water rights in the Raymond Basin as original parties to the action entitled City of Pasadena v. City of Alhambra, Los Angeles Superior Court No. Pasadena C-1323, or as a successor-in-interest to such parties.

Said rights, as originally adjudicated, have been modified and Water Company now owns rights designated as Decreed Right 1955 giving Water Company the right to pump or otherwise extract 260 acre feet of water annually from the Western Unit of the Raymond Basin.

The Water Company has not exercised its rights to the fullest extent possible and as of January 18, 1974, Water Company has available for lease 258 acre feet of water in said Western Unit for the fiscal year ending June 30, 1974.

The Water Company desires to lease 258 acre feet of its Decreed Right 1955 available to be pumped during the 1973-1974 fiscal year to the City for the consideration set forth below.

The City desires to lease 258 acre feet of said Decreed Right 1955.

NOW, THEREFORE, the parties agree as follows:

1. Water Company does hereby lease to the City 258 acre feet of its Decreed Right 1955 available to be pumped from the Western Unit of the Raymond Basin during the fiscal year ending June 30, 1974.

2. The first 250 acre feet of water pumped or otherwise extracted from the Western Unit of the Raymond Basin by the City between the date hereof and June 30, 1974, shall be deemed to be in exercise of the portion of the Decreed Right 1955 of Water Company leased hereby.

3. Any water pumped or otherwise extracted from said Western Unit by the City in excess of the first 250 acre feet pumped or otherwise extracted from said Western Unit after the date of this agreement shall not be and shall not be deemed to be in exercise of any rights of Water Company.

4. The City agrees to pay to Water Company \$9,030.00 within 60 days after the date of this agreement.

5. Water Company warrants that it has the authority to lease said water rights and that the City will have the right to pump or otherwise extract from the Western Unit of the Raymond Basin 258 acre feet of water between the date of this agreement and June 30, 1974.

Without limiting Water Company's liability under this warranty, Water Company agrees to refund all payments made under paragraph 4 if the City is prevented by any court of competent jurisdiction from exercising the rights leased hereunder, or to refund such payments on a pro-rata basis if such lease is partially set aside.

6. The City warrants that it will use the said rights leased hereby only in a proper and timely manner by pumping or otherwise extracting water from said Western Unit.

7. The parties hereby will cooperate to the extent necessary to properly advise and inform the Watermaster charged with the administration of the judgment in the above-entitled action of the actions of the parties and to take such other action reasonably required to implement and effectuate this agreement.

DATED: March 26, 1974

CANYON MUTUAL WATER COMPANY

By John E. O'Brien
President

CITY OF PASADENA

By Donna J. L. Curtis
Chairman of the Board of Directors
of the City of Pasadena

ATTEST:

Shirley M. Rindone
City Clerk

RESOLUTION NO. (Lease of Water Rights No. 9292)

March 26, 1974

Introduced by Director Charles McKenney

BE IT RESOLVED by the Board of Directors of the City of Pasadena that the lease presented herewith, between the City of Pasadena and Canyon Mutual Water Company pertaining to the transfer of water rights in the Raymond Basin, be and the same hereby is approved, the Chairman of the Board of Directors is authorized and directed to execute the same for and on behalf of the City, and the City Clerk is directed to attest his signature and affix the corporate seal of the City thereto, and that the Accounting Administrator be and he hereby is authorized and directed to appropriate out of the Water Fund the sum of \$9,030.00 for the consideration set forth in said lease.

Adopted by the said Board of Directors by the following vote:

Ayes: Directors Jones, Matthews, McKenney, White, Yokaitis
Noes: None
Absent: Directors Benedict, Wilfong

THIS LEASE, by and between the KINNELOA IRRIGATION DISTRICT, hereinafter referred to as "District," and the CITY OF PASADENA, a municipal corporation, hereinafter referred to as "City", is made and based upon the following facts:

Both parties to this agreement own adjudicated water rights in the Raymond Basin as original parties to the action entitled City of Pasadena v. City of Alhambra, Los Angeles Superior Court No. Pasadena C-1323, or as a successor-in-interest to such parties.

Said rights, as originally adjudicated, have been modified and the District now owns rights designated as Decreed Right 1955 giving the District the right to pump or otherwise extract 407 acre feet of water annually from the Western Unit of the Raymond Basin.

The District has not exercised its rights to the fullest extent possible and as of January 18, 1974, the District has available for lease 325 acre feet of water in said Western Unit for the fiscal year ending June 30, 1974.

The District desires to lease 325 acre feet of its Decreed Right 1955 available to be pumped during the 1973-1974 fiscal year to the City for the consideration set forth below.

The City desires to lease 325 acre feet of said Decreed Right 1955.

NOW, THEREFORE, the parties agree as follows:

1. The District does hereby lease to the City 325 acre feet of its Decreed Right 1955 available to be pumped from the Western Unit of the Raymond Basin during the fiscal year ending June 30, 1974.
2. The first 325 acre feet of water pumped or otherwise extracted from the Western Unit of the Raymond Basin by the City between the date hereof and June 30, 1974, shall be deemed to be in exercise of the portion of the Decreed Right 1955 of the District leased hereby.
3. Any water pumped or otherwise extracted from said Western Unit by the City in excess of the first 325 acre feet pumped or otherwise extracted from said Western Unit after the date of this agreement shall not be and shall not be deemed to be in exercise of any rights of the District.
4. The City agrees to pay to the District \$11,375.00 within 60 days after the date of this agreement.
5. The District warrants that it has the authority to lease said water rights and that the City will have the right to pump or otherwise extract from the Western Unit of the Raymond Basin 325 acre feet of water between the date of this agreement and June 30, 1974.

Without limiting the District's liability under this warranty, the District agrees to refund all payments made under paragraph 4 if the City is prevented by any court of competent jurisdiction from exercising the rights leased hereunder, or to refund such payments on a pro rata basis if such lease is partially set aside.

6. The City warrants that it will use the said rights leased hereby only in a proper and timely manner by pumping or otherwise extracting water from said Western Unit.

7. The parties hereby will cooperate to the extent necessary to properly advise and inform the Watermaster charged with the administration of the judgment in the above-entitled action of the actions of the parties and to take such other action reasonably required to implement and effectuate this agreement.

DATED: March 26, 1974

KINNELOA IRRIGATION DISTRICT

By R. Neal Battison
Treasurer

ATTEST:

Harriett C. Perkins
City Clerk

CITY OF PASADENA

By Donald J. Smith
Chairman of the Board of Directors
of the City of Pasadena

RESOLUTION NO. (Lease of Water Rights No. 9293)

March 26, 1974

Introduced by Director Charles McKenney

BE IT RESOLVED by the Board of Directors of the City of Pasadena that the lease presented herewith, between the City of Pasadena and Kinneelo Irrigation District pertaining to the transfer of water rights in the Raymond Basin, be and the same hereby is approved, the Chairman of the Board of Directors is authorized and directed to execute the same for and on behalf of the City, and the City Clerk is directed to attest his signature and affix the corporate seal of the City thereto, and that the City Controller be and he hereby is authorized and directed to appropriate out of the Water Fund the sum of \$11,375 for the consideration set forth in said lease.

Adopted by the said Board of Directors by the following vote:

Ayes: Directors Jones, Matthews, McKenney, White, Yokaitis
Noes: None
Absent: Directors Benedict, Wilfong

THIS LEASE, by and between the MIRA LOMA MUTUAL WATER COMPANY, hereinafter referred to as "Water Company", and the CITY OF PASADENA, a municipal corporation, hereinafter referred to as "City", is made and based upon the following facts:

Both parties to this agreement own adjudicated water rights in the Raymond Basin as original parties to the action entitled City of Pasadena v. City of Alhambra, Los Angeles Superior Court No. Pasadena C-1323, or as a successor-in-interest to such parties.

Said rights, as originally adjudicated, have been modified and Water Company now owns rights designated as Decreed Right 1955 giving Water Company the right to pump or otherwise extract 25 $\frac{1}{2}$ acre feet of water annually from the Western Unit of the Raymond Basin.

The Water Company has not exercised its rights to the fullest extent possible and as of January 18, 1974, Water Company has available for lease 194 acre feet of water in said Western Unit for the fiscal year ending June 30, 1974.

The Water Company desires to lease 194 acre feet of its Decreed Right 1955 available to be pumped during the 1973-1974 fiscal year to the City for the consideration set forth below.

The City desires to lease 194 acre feet of said Decreed Right 1955.

NOW, THEREFORE, the parties agree as follows:

1. Water Company does hereby lease to the City 194 acre feet of its Decreed Right 1955 available to be pumped from the Western Unit of the Raymond Basin during the fiscal year ending June 30, 1974.

2. The first 194 acre feet of water pumped or otherwise extracted from the Western Unit of the Raymond Basin by the City between the date hereof and June 30, 1974, shall be deemed to be in exercise of the portion of the Decreed Right 1955 of Water Company leased hereby.

3. Any water pumped or otherwise extracted from said Western Unit by the City in excess of the first 194 acre feet pumped or otherwise extracted from said Western Unit after the date of this agreement shall not be and shall not be deemed to be in exercise of any rights of Water Company.

4. The City agrees to pay to Water Company \$6,790.00 within 60 days after the date of this agreement.

5. Water Company warrants that it has the authority to lease said water rights and that the City will have the right to pump or otherwise extract from the Western Unit of the Raymond Basin 194 acre feet of water between the date of this agreement and June 30, 1974.

Without limiting Water Company's liability under this warranty, Water Company agrees to refund all payments made under paragraph 4 if the City is prevented by any court of competent jurisdiction from exercising the rights leased hereunder, or to refund such payments on a pro rata basis if such lease is partially set aside.

6. The City warrants that it will use the said rights leased hereby only in a proper and timely manner by pumping or otherwise extracting water from said Western Unit.

7. The parties hereby will cooperate to the extent necessary to properly advise and inform the Watermaster charged with the administration of the judgment in the above-entitled action of the actions of the parties and to take such other action reasonably required to implement and effectuate this agreement.

DATED: March 26, 1974

MIRA LOMA MUTUAL WATER COMPANY

By [Signature]

CITY OF PASADENA

By [Signature]

Chairman of the Board of Directors
of the City of Pasadena

ATTEST:

[Signature]
City Clerk

RESOLUTION (Lease of Water Rights No. 9294)

March 26, 1974

Introduced by Director Charles McKenney

BE IT RESOLVED by the Board of Directors of the City of Pasadena that the lease presented herewith, between the City of Pasadena and Mira Loma Mutual Water Company pertaining to the transfer of water rights in the Raymond Basin, be and the same hereby is approved, the Chairman of the Board of Directors is authorized and directed to execute the same for and on behalf of the City, and the City Clerk is directed to attest his signature and affix the corporate seal of the City thereto, and that the Accounting Administrator be and he hereby is authorized and directed to appropriate out of the Water Fund the sum of \$6,790.00 for the consideration set forth in said lease.

Adopted by the said Board of Directors by the following vote:

Ayes: Directors Jones, Matthews, McKenney, White, Yokaitis
Noes: None
Absent: Directors Benedict, Wilfong

THIS LEASE, by and between the OSBORN COMPANY, hereinafter referred to as "Water Company", and the CITY OF PASADENA, a municipal corporation, hereinafter referred to as "City", is made and based upon the following facts:

Both parties to this agreement own adjudicated water rights in the Raymond Basin as original parties to the action entitled City of Pasadena v. City of Alhambra, Los Angeles Superior Court No. Pasadena C-1323, or as a successor-in-interest to such parties.

Said rights, as originally adjudicated, have been modified and Water Company now owns rights designated as Decreed Right 1955 giving Water Company the right to pump or otherwise extract 67.8 acre feet of water annually from the Western Unit of the Raymond Basin.

The Water Company has not exercised its rights to the fullest extent possible and as of January 18, 1974, Water Company has available for lease 67 acre feet of water in said Western Unit for the fiscal year ending June 30, 1974.

The Water Company desires to lease 67 acre feet of its Decreed Right 1955 available to be pumped during the 1973-1974 fiscal year to the City for the consideration set forth below.

The City desires to lease 67 acre feet of said Decreed Right 1955.

NOW, THEREFORE, the parties agree as follows:

1. Water Company does hereby lease to the City 67 acre feet of its Decreed Right 1955 available to be pumped from the Western Unit of the Raymond Basin during the fiscal year ending June 30, 1974.
2. The first 67 acre feet of water pumped or otherwise extracted from the Western Unit of the Raymond Basin by the City between the date hereof and June 30, 1974, shall be deemed to be in exercise of the portion of the Decreed Right 1955 of Water Company leased hereby.
3. Any water pumped or otherwise extracted from said Western Unit by the City in excess of the first 67 acre feet pumped or otherwise extracted from said Western Unit after the date of this agreement shall not be and shall not be deemed to be in exercise of any rights of Water Company.
4. The City agrees to pay to Water Company \$2,345.00 within 60 days after the date of this agreement.
5. Water Company warrants that it has the authority to lease said water rights and that the City will have the right to pump or otherwise extract from the Western Unit of the Raymond Basin 67 acre feet of water between the date of this agreement and June 30, 1974.

Without limiting Water Company's liability under this warranty, Water Company agrees to refund all payments made under paragraph 4 if the City is prevented by any court of competent jurisdiction from exercising the rights leased hereunder, or to refund such payments on a pro rata basis if such lease is partially set aside.

6. The City warrants that it will use the said rights leased hereby only in a proper and timely manner by pumping or otherwise extracting water from said Western Unit.

7. The parties hereby will cooperate to the extent necessary to properly advise and inform the Watermaster charged with the administration of the judgment in the above-entitled action of the actions of the parties and to take such other action reasonably required to implement and effectuate this agreement.

DATED: March 26, 1974

OSBORN COMPANY

By [Signature]

CITY OF PASADENA

By [Signature]
Chairman of the Board of Directors
of the City of Pasadena

ATTEST:

[Signature]
City Clerk

RESOLUTION NO. (Lease of Water Rights No. 9295)

March 26, 1974

Introduced by Director Charles McKenney

BE IT RESOLVED by the Board of Directors of the City of Pasadena that the lease presented herewith, between the City of Pasadena and Osborn Company pertaining to the transfer of water rights in the Raymond Basin, be and the same hereby is approved, the Chairman of the Board of Directors is authorized and directed to execute the same for and on behalf of the City, and the City Clerk is directed to attest his signature and affix the corporate seal of the City thereto, and that the Accounting Administrator be and he hereby is authorized and directed to appropriate out of the Water Fund the sum of \$2,345 for the consideration set forth in said lease.

Adopted by the said Board of Directors by the following vote:

Ayes: Directors Jones, Matthews, McKenney, White, Yokaitis
Noes: None
Absent: Directors Benedict, Wilfong

THIS LEASE, by and between the EAST PASADENA WATER COMPANY, hereinafter referred to as "Water Company", and the CITY OF PASADENA, a municipal corporation, hereinafter referred to as "City", is made and based upon the following facts:

Both parties to this agreement own adjudicated water rights in the Raymond Basin as original parties to the action entitled City of Pasadena v. City of Alhambra, Los Angeles Superior Court No. Pasadena C-1323, or as a successor-in-interest to such parties.

Said rights, as originally adjudicated, have been modified and Water Company now owns rights designated as Decreed Right 1955 giving Water Company the right to pump or otherwise extract 628 acre feet of water annually from the Western Unit of the Raymond Basin.

The Water Company has not exercised its rights to the fullest extent possible and as of January 18, 1974, Water Company has available for lease 225 acre feet of water in said Western Unit for the fiscal year ending June 30, 1974.

The Water Company desires to lease 225 acre feet of its Decreed Right 1955 available to be pumped during the 1973-1974 fiscal year to the City for the consideration set forth below.

The City desires to lease 225 acre feet of said Decreed Right 1955.

NOW, THEREFORE, the parties agree as follows:

1. Water Company does hereby lease to the City 225 acre feet of its Decreed Right 1955 available to be pumped from the Western Unit of the Raymond Basin during the fiscal year ending June 30, 1974.

2. The first 225 acre feet of water pumped or otherwise extracted from the Western Unit of the Raymond Basin by the City between the date hereof and June 30, 1974, shall be deemed to be in exercise of the portion of the Decreed Right 1955 of Water Company leased hereby.

3. Any water pumped or otherwise extracted from said Western Unit by the City in excess of the first 225 acre feet pumped or otherwise extracted from said Western Unit after the date of this agreement shall not be and shall not be deemed to be in exercise of any rights of Water Company.

4. The City agrees to pay to Water Company \$7,875.00 within 60 days after the date of this agreement.

5. Water Company warrants that it has the authority to lease said water rights and that the City will have the right to pump or otherwise extract from the Western Unit of the Raymond Basin 225 acre feet of water between the date of this agreement and June 30, 1974.

Without limiting Water Company's liability under this warranty, Water Company agrees to refund all payments made under paragraph 4 if the City is prevented by any court of competent jurisdiction from exercising the rights leased hereunder, or to refund such payments on a pro rata basis if such lease is partially set aside.

6. The City warrants that it will use the said rights leased hereby only in a proper and timely manner by pumping or otherwise extracting water from said Western Unit.

7. The parties hereby will cooperate to the extent necessary to properly advise and inform the Watermaster charged with the administration of the judgment in the above-entitled action of the actions of the parties and to take such other action reasonably required to implement and effectuate this agreement.

DATED: March 26, 1974

EAST PASADENA WATER COMPANY

By *James C. Smith*

CITY OF PASADENA

By *Donald J. White*
Chairman of the Board of Directors
of the City of Pasadena

ATTEST:

Samuel J. Distenfeld
City Clerk

RESOLUTION (Water Rights No. 9296)

March 26, 1974

Introduced by Director Charles McKenney

BE IT RESOLVED by the Board of Directors of the City of Pasadena that the lease presented herewith, between the City of Pasadena and East Pasadena Water Company pertaining to the transfer of water rights in the Raymond Basin, be and the same hereby is approved, the Chairman of the Board of Directors is authorized and directed to execute the same for and on behalf of the City, and the City Clerk is directed to attest his signature and affix the corporate seal of the City thereto, and that the Accounting Administrator be and he hereby is authorized and directed to appropriate out of the Water Fund the sum of \$7,875.00 for the consideration set forth in said lease.

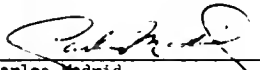
Adopted by the said Board of Directors by the following vote:

Ayes: Directors Jones, Matthews, McKenney, White, Yokaitis
Noes: None
Absent: Directors Benedict, Wilfong

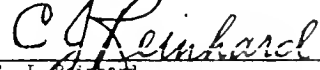
PROGRAM FOR SPREADING CREDIT CERTIFICATION
BY LACFCD AND WATERMASTER

Month/Year	Kinneloa		Las Flores		Lincoln Avenue		City of Pasadena				Rubio Canyon	
	Irrigation		Water		Water		Arroyo Seco		Eaton Canyon		Land & Water	
	District		Company		Company						Association	
	Diverted	Spread	Diverted	Spread	Diverted	Spread	Diverted	Spread	Diverted	Spread	Diverted	Spread
July 1973	0.87	0.87	0	0	64.86	64.86	0	0	12.42	12.42	11.88	11.88
Aug. 1973	0.99	0.99	0	0	65.64	65.64	0	0	51.84	51.84	10.00	10.00
Sept. 1973	0.81	0.81	0	0	12.85	12.85	0	0	25.38	25.38	8.34	8.34
Oct. 1973	0.96	0.96	0	0	36.96	36.96	0	0	36.93	36.93	8.02	8.02
Nov. 1973	0.76	0.76	0	0	29.90	29.55	0	0	27.32	27.32	5.88	5.88
Dec. 1973	0.79	0.79	0	0	55.07	55.07	0	0	32.68	32.68	6.57	6.57
Jan. 1974	0.53	0.53	4.78	4.78	92.62	70.98	258.15	238.87	103.57	103.57	36.25	36.25
Feb. 1974	0.80	0.80	5.60	5.60	30.98	30.98	0	0	142.81	142.81	17.84	17.84
Mar. 1974	0.14	0.14	8.28	8.28	110.70	102.24	267.13	264.97	111.32	111.32	38.00	38.00
Apr. 1974	0.55	0.55	10.01	10.01	49.71	49.71	0	0	227.16	227.16	26.72	26.72
May 1974	0.89	0.89	7.34	7.34	53.45	53.45	0	0	151.65	151.65	17.40	17.40
June 1974	0.18	0.18	5.37	5.37	38.97	38.97	0	0	103.50	103.50	14.14	14.14
TOTAL	8.27	8.27	41.38	41.38	641.71	611.26	525.28	503.84	1026.58	1026.58	201.04	201.04

The Watermaster has reviewed the above figures and certifies that the amounts shown as diverted are correct.


Carlos Madrid
Deputy Watermaster
Department of Water Resources

The LACFCD has reviewed the above figures and certifies that the amounts shown as spread are correct.


C. J. Reinhard
Supervising Civil Engineer II
Los Angeles County Flood Control District

